RECONSTRUCTING COMMUNITIES:
PARTICIPATORY RECOVERY PLANNING IN POST-DISASTER JAPAN

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RECONSTRUCTING COMMUNITIES:
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This dissertation is an ethnographic, socio-historical study of public participation in post-disaster recovery planning in Japan from the 1995 Great Hanshin-Awaji Earthquake in Kobe through ongoing recovery activities in the tsunami-devastated areas of Tōhoku. It investigates how a "new breed of specialists" in participatory recovery planning (PRP), primarily from Kobe, co-constructed the field of PRP along with their own expertise, and scrutinizes what happens specifically when these experts work together with the local residents of the Sanriku coast, who apprehend the world from very different cultural, historical and epistemological perspectives. This work reveals PRP in Tōhoku as a process through which the "community" of experts and the "community" of locals strive to re-construct themselves and each other.

Based on ethnographic data, this dissertation questions both the old "deficit model" of an ignorant and irrational public and the (recently in vogue) deficit model of "unreflexive" experts constitutionally blind to local context and the situated character of knowledge — at least with respect to a certain category of expert, epitomized by the PRP experts from Kobe. Drawing upon recent scholarship, the thesis argues that it is fruitful to dub this category *engagement agents*: technical experts who "orchestrate" participatory engagement exercises, integrate and contextualize diverse knowledges, and liaise with diverse stakeholders and key constituencies. Among the core practices of engagement agents is the praxis of *trust-work*, through which they construct and maintain their credibility as experts and their trustworthiness as moral agents,

integrating their several roles. Putatively "non-expert" individuals without formal training may also pick up the know-how of a technical specialty and become recognized as authoritative "experts" while practicing the peculiar roles of engagement agents, while also retaining the social and epistemological advantages of "locals."

"Expertise" is not solely about the production, use, or communication of "knowledge." Rather, there are as many ways of "being an expert" or "constructing expertise" as there are of situating practice, locating social identity, negotiating credibility, eliciting trust, engaging constituencies, or enacting reflexivity.

BIOGRAPHICAL SKETCH

Tyson Vaughan is a native of New Orleans. During an extended sabbatical in the midst of his undergraduate career, he co-founded and worked at several Internet startups in the San Francisco Bay Area. After completing his BA in English (creative writing) at Stanford University in 2002, he lived and worked for five years in Kobe, Japan, where he met his wife, Michiyo. While a graduate student at Cornell University, he co-founded the multilingual, academic blog *Teach 3.11*, which helps familiarize students and teachers with academic literature that provides socio-historical context for the March 11, 2011 disasters. From January 2014, he will begin work as a Postdoctoral Research Fellow at the Asia Research Institute of the National University of Singapore.

For Michiyo, without whose unwavering support, profound patience, and tireless assistance this dissertation would have been impossible.

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More individuals than I can list contributed substantially to this project. In Kobe, Liz Maly helped me make a number of early, crucial connections in the field, and also supplied plenty of knowledge and positive encouragement. My research simply could not have proceeded at all without the support of Yoshimi Amakawa, Ikuo Kobayashi, and Ryuichi Nozaki, all of whom gave generously of their time and provided access to critical events and sources of information. I am deeply indebted to David Satterwhite, who far exceeded his role as Executive Director of the Fulbright Commission in Japan by coming to Tōhoku to show me around and to introduce me to an array of important actors in the Kesennuma and Minami-Sanriku areas. Thanks to Tetsu Satō and Atsuko Itō for bringing me to their institutions in Kyoto and Takasaki, respectively, and engaging in highly productive exchanges of ideas. Thanks to Tamiyo Kondo for many fruitful discussions, and for co-sponsoring, with Kumiko Yamaji of Kobe Machiken, my talk on gender and disaster recovery. I want to single out other individuals affiliated with Kobe Machiken for their support, including Seiji Komori, Nobukazu Tsuji, Harumi Takasago, Masayuki Asami, Miwa Kobayashi, and Shōgoro Hagiwara, as well as Chiharu Hisaichi and the Kobe Valentine Team.

Likewise, my IRP colleagues deserve mention: Sanjaya Bhatia, Yasuo Kawawaki, Yoshiyuki Akamatsu, Gerald Potutan, Gulizaer Keyimu, Khaerunnisa, Li-san, and Ayako Fujimoto. University professors in Japan who deserve special thanks for contributing their knowledge, experience and insights include Yoshimitsu Shiozaki, Osamu Tsukihashi, Yasushi Takeuchi, Akihiko Hokugo, and Yasuo Tanaka. I also want to thank local residents and community leaders in Kobe, including Akira Miyasada, Yasuzo Tanaka, Takashi Terada, Hiroshi Kanda, Junichi Hibino, Shizuyo Yoshitomi, Chiaki Kim, and the entire, irrepressibly *genki* crew of NeNe at FMYY in Takatori.

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A number of discussions with scholars in the wider fields of STS, disaster studies, urban planning, and Japan studies yielded critical insights that contributed to

my analysis. This includes a workshop and two virtual conferences organized by Atsushi Akera and Kim Fortun for the Fukushima Forum. Among the many scholars who provided valuable feedback at these exchanges were Scott Frickel, Scott Knowles, Sharon Traweek, Bill Kinsella, Norio Maki, Juraku Kohta, Nicolas Sternsdorff Cisterna, Craig Nelson, Daniel Aldrich, Chris Jones, Yasuhito Abe, Chika Watanabe, Cecilia Manoliu, Luis Murillo, Kyle Cleveland, Monamie Bhadra, Sonjia Schmid, and Lisa Onaga. Discussions with disaster planning and recovery experts Robert Olshansky and William Siembieda, Japanese historican Philip C. Brown, and urban planning luminaries Mike Douglass and John Friedmann also proved valuable and enlightening. Extra special thanks to Mike D. for his steadfast faith in me and my project.

I would have been unable to even contemplate beginning the research for this dissertation without the superb linguistic preparation given to me by Cornell's incomparable corps of Japanese language instructors: Yasuko Yamasaki Fujita, Eriko Akamatsu, Misako Suzuki, Yukiko Katagiri, Sahoko Ichikawa, and Naomi Nakada Larson. Likewise, I want to thank the instructors of IUC-Yokohama for further upgrading my skills, especially Naoko Kurokawa. The cooperation and camaraderie of my classmates — too many to mention — also was essential to my Japanese language education. This work was made possible by three years and a summer of Foreign Language and Area Studies Fellowships, funded by the U.S. Dept. of Education.

Stateside, this project would have fallen apart without the organizational and administrative efforts of Elizabeth Edmondson at Cornell's Einaudi Center and the staff of the Dept. of Science & Technology Studies: Stacey Stone, Deb Van Galder, Susan Sullivan and Ryan Heichel. Susan Lewis at the Institutional Review Board of Cornell University was understanding and responsive to the needs of my project. Dean

Jan Allen at the Graduate School and Rodney Orme at the Registrar also provided critical and timely administrative support, more than once cutting through knots of red tape on ridiculously short notice.

My friends and colleagues at Cornell University, too many to list, provided life-sustaining companionship and encouragement, as well as critical insights for my project's analysis. I want to thank especially Angie Boyce, Ilil Benjamin, Hansen Hsu, Anto Mohsin, and Megan Halpern for their thoughtful comments on draft sections of this document, as well as Sara Pritchard, Suman Seth, Rachel Prentice, and Ron Kline for feedback on proposals and ideas-in-progress. My dissertation committee, Michael Lynch, Trevor Pinch, and chair Bruce Lewenstein were always there when I needed them. They, and Stephen Hilgartner, my field-appointed outside reader, provided insightful comments, corrections, questions and feedback that have substantially improved the quality of this dissertation. I am especially indebted to Bruce, my advisor from my first day at Cornell, whose shrewd and humane guidance shepherded me through the rigors of graduate school, and who kept me on track during the long home stretch of this dissertation with weekly Skype meetings and with timely and thoughtful feedback on manuscript drafts.

Finally, thanks to my family on both sides of the Pacific for supporting me both emotionally and materially throughout this process. Earl Vaughan (my father) and Katherine Vaughan cheered me on from day one, and helped fill many a funding gap. Whatever confidence I have had in my ability to achieve my goals in life, including this Ph.D., I owe much of it to my dad. Burger Vaughan (my mother) and Sylvia Rayfield housed Michiyo and me, and patiently put up with me as I completed the stressful process of writing. Thanks also to my mom for her detailed proof-reading and encouraging reviews of my work. Mitsutoshi and Emi Nakamura and Bettan and

Takayo Taniguchi helped to take care of Michiyo and me during our stay in Kobe. Mayu and Riho Taniguchi ran much-needed errands for us when we couldn't. Yōko Nakamura (Okaasan) sheltered us, fed us her delicious, homemade food, and took care of us when we were sick. Her practical wisdom, unfailing dedication, and steadfast caretaking helped us to keep our eyes on the prize and our feet on the ground. Last, and most important, Michiyo, my beloved wife, endured the vicissitudes through thick and thin. She has been invaluable as a research assistant, translator and interpreter, office organizer, chauffeur, guide, nurse, masseuse, cook, baker, interlocutor, teacher, preacher, protector, lover, friend, and partner in all things. She makes me a better researcher and a better human being, and for that I am forever indebted to her.

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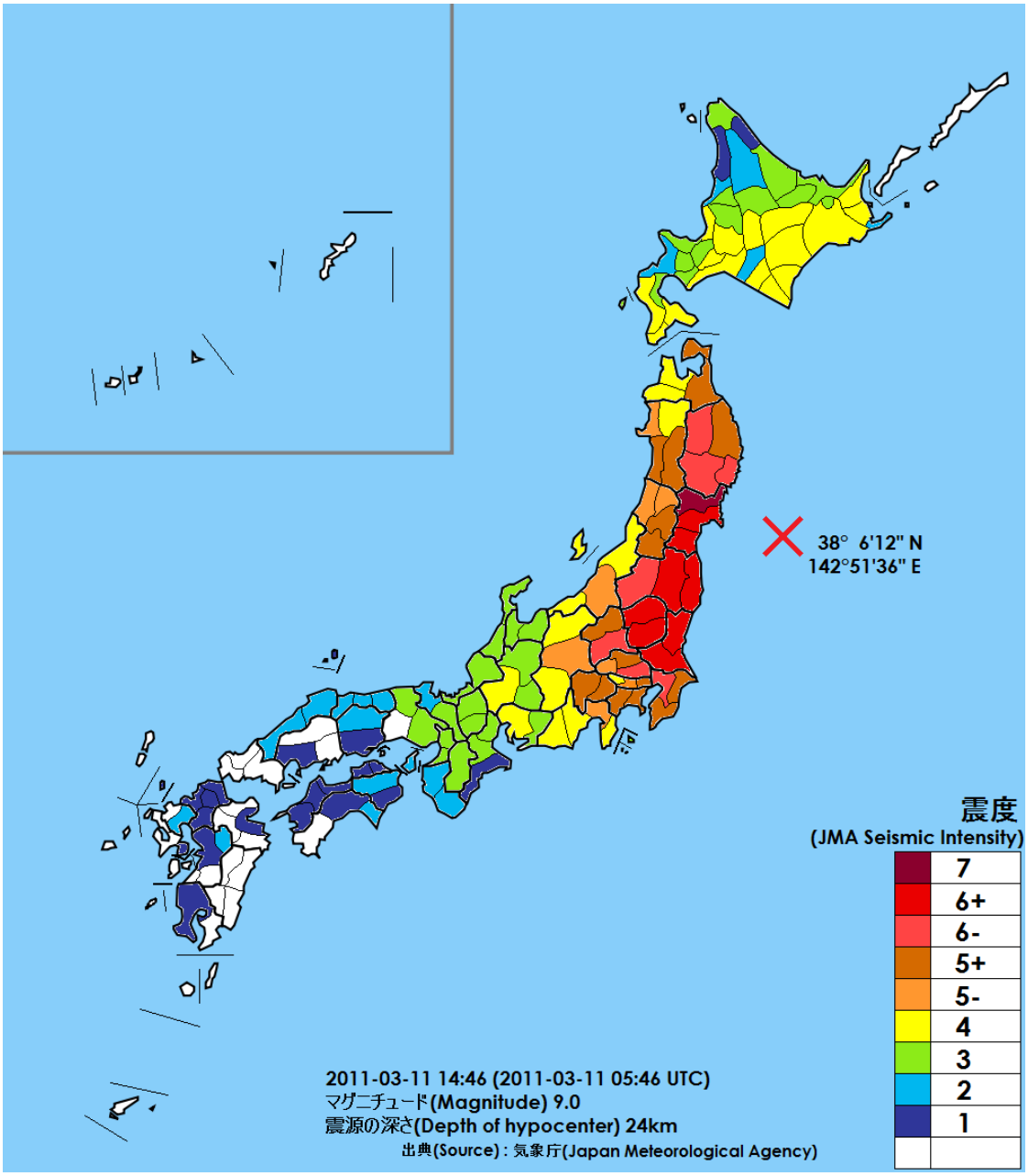

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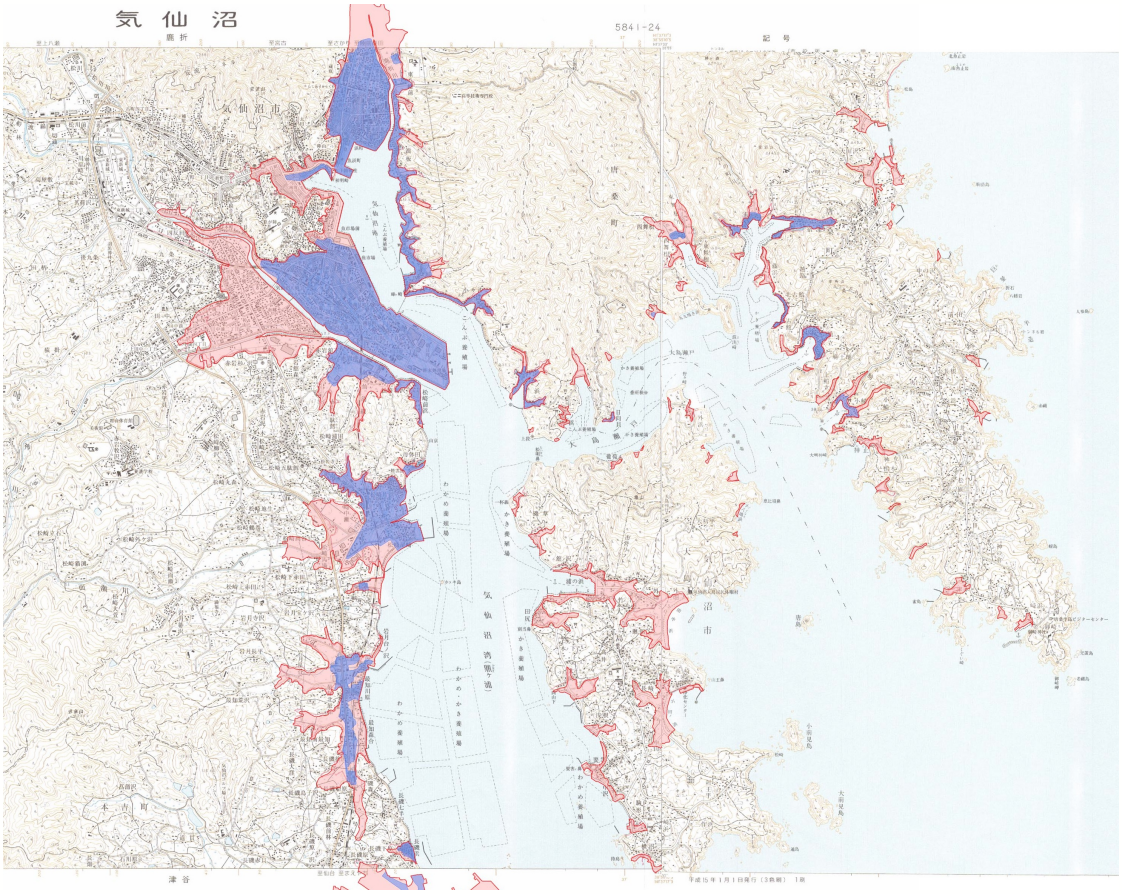

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1. http://danso.env.nagoya-u.ac.jp/20110311/map/index_e.html

GLOSSARY: KEY JAPANESE TERMS

This short list explains a few key words that appear repeatedly in the text. Additional, less important or less frequent terms will be translated in the body of the dissertation.

* *Bōsai* (防災): disaster risk reduction/mitigation/prevention.
* *Bundan* (分断): division, separation.
* *Fukkō* (復興): recovery, reconstruction, renovation.
* *Gappei* (合併): merging, amalgamation, annexation.
* *Hama* (浜): beach, seashore, seaside district.
* *Hisaichi* (被災地): disaster zone, literally "disaster-struck land" or "land that has endured calamity."
* *Hisaisha* (被災者): sometimes translated as "victim" or "survivor;" literally "disaster-struck person" or "person who has endured calamity."
* *Juku* (塾): semi-formal study group or seminar; informal school.
* *Kizuna* (絆): social ties or bonds.
* *Machi-aruki* (まち歩き): "town-walking," a guided group walking tour through a townscape, usually to learn about local history and culture.
* *Machi-zukuri kyōgikai* (まちづくり協議会), or *machi-zukuri* for short: "community-making;" neighborhood-based local planning or community development associations.[2]
* *Shūdan-iten* (集団移転): Group relocation.
* *Takadai-iten* (高台移転): Relocation to high ground.
* *Toshi-keikaku* (都市計画): City planning (conventional, top-down, technocratic).

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2. There are many ways to translate these terms from the Japanese. *Machi* can mean "town," "community," "neighborhood," or even "block," depending on context and the way it is written. As with its English equivalents, it can connote "community" in the sense of a physical arrangement of architectonic structures or "community," in the sense of a cohesive social group, or both. It can be written with at least two different *kanji* characters (町 or 街), or with the *kana* phonetic syllabary (まち). *Zukuri*, a gerund of the verb *tsukuru*, "to make," "build," "develop," also may be written in *kanji* (作り) or *kana* (づくり). *Machi-zukuri* is generally written using *kana* alone, which emphasizes interpretive ambiguity. Meanwhile, the most literal translation of *kyōgikai* (協議会) might read "cooperative deliberation meeting," though it is often rendered "council" or "conference" or "association" in the English literature.

DRAMATIS PERSONAE

In order to help the reader keep track of the cast of characters portrayed in this dissertation, here is a list of key, selected actors and their institutional affiliations. Note that in this English-language dissertation, names are provided *in the order familiar to English speakers* (i.e., surname last), contrary to the standard Japanese order, which is surname first. Some names are pseudonyms, for the protection of certain individuals.

* Tadamori Arakawa: independent tea seller from Minami-Sanriku.
* Kuniaki Baba: resident and owner of waste disposal company in Karakuwa; sponsor and supporter of network for recovery support volunteers.
* Masaaki Chibata: Engineer and planner from Pacific Consultants, Inc., a major contracting corporation, hired by Minami-Sanriku and Miyagi Prefecture to work on recovery plan for Shizugawa District.
* Eiichi Katō: hotel owner from Shishiori District, Kesennuma.
* Norio Katō: Karakuwa resident; president, Kesennuma Tourist Convention Agency; owner of a *minshuku* (a kind of Japanese-style inn) in Karakuwa
* Ikuo Kobayashi: professor of planning, Yamate University, Kobe; PRP expert (trained as urban planner); founder and principal of several organizations and networks for institutionalizing and coordinating Kobe's community of PRP experts, including CO-PLAN, Supporters' Network for Recovery from Hanshin-Awaji Earthquake Through *Machi-zukuri*, and Kobe *Machi-zukuri* Research Institute
* Seiji Komori: retired professor of geography, Himeji University; PRP expert; officer of Kobe *Machi-zukuri* Research Institute; chief of *Fukkō Juku*.
* Mayumi Kudō: priestess of Shintō shrine in Shizugawa District, Minami-Sanriku; photographer and artist; organizer of local PRP initiatives; recognized by PRP experts and public as *machi-zukuri* expert.
* Teruyuki Morisaki: PRP expert (trained as architect); worked with Noda Hokubu and Takatori East *machi-zukuri* organizations for recovery planning after Kobe earthquake.
* Mr. Neguchi: shop owner, resident of Tadakoshi District, Karakuwa; head of *takadai-iten* association, former head of neighborhood association.
* Ryuichi Nozaki: PRP expert (trained as architect); officer of Kobe *Machi-zukuri* Research Institute; working with several groups of residents in Kesennuma, including the Tadakoshi District of Karakuwa.
* Harumi Takasago: PRP expert; member of Kobe *Machi-zukuri* Research Institute; relocated to Kesennuma and worked out of local Volunteer Station on variety of recovery-related projects, including PRP with Nozaki and others

* Mr. Onodera: head of Community Hall of Shishiori District, Kesennuma.
* Osamu Tsukihashi: professor of architecture, Kobe University; PRP expert; working with several groups of residents in Miyagi and Iwate Prefectures, including the Osawa District of Karakuwa.
* Nobukazu Tsuji: independent urban planner; PRP expert; resident of Matsumoto District in Kobe; worked with Matsumoto *machi-zukuri kyōgikai* as consultant after Kobe earthquake; officer of Kobe *Machi-zukuri* Research Institute; emcee of *Fukkō Juku*; working with several communities in Miyagi and Iwate Prefectures.

PREFACE

ちぎりきな　*chigiri ki na*
かたみに袖を　*katami ni sode o*
しぼりつつ　*shibori tsutsu*
末の松山　*sue no Matsuyama*
浪こさじとは　*nami kosaji to wa*

We were exchanging our love vows
Wringing each other's sleeves
When the wave overtopped the peak of Pine Mountain....[3]

— Kiyohara no Motosuke (清原　元輔)[4]

Disasters are a "normal" part of the human condition.[5] Their periodic occurrence is inevitable. Yet, the variability of that periodicity and the unpredictability of the precise moments at which they strike exacerbate their capacity to disrupt — and to shape — human lives. Like the poet Kiyohara no Motosuke's lovers, we may be attending to the passions and obligations of our mundane lives, when suddenly an overwhelming violence strikes from beyond our imaginations. This dissertation, too, was disrupted, and shaped, by the unexpected occurrence of disaster.

It was originally conceived, in 2010, as a comparison of the participatory recovering planning processes in post-earthquake Kobe and post-Katrina New Orleans. Despite obvious social, historical and material differences between the two

3. Translation by author.
4. *Waka* poet, CE 908-990.
5. Perrow (1984, 1999).

cases, they share a number of important features. For example, in both cities, historically marginalized populations proved to be the most vulnerable. In both cities, early recovery plans presented by experts and officials were vehemently rejected by citizens, in part due to lack of public input. In both cities, none of the subsequent recovery planning endeavors was able to garner significant political legitimacy without prominently featuring widespread public participation as central to its process. In both cities, neighborhood- and district-based planning groups were provided with teams of architects, engineers and planning consultants, and lay residents worked with these experts and officials to plan for the social and material recovery of their communities. And in both cities, the final recovery plans resulting from these processes closely resembled the initially rejected plans, yet enjoyed broad support.

In short, Kobe and New Orleans were the two pre-eminent examples of major urban (actually peri-urban) disasters in wealthy, industrialized, democratic societies in recent decades, and community-based participatory planning featured prominently as a key component of both cities' recovery processes. Thus, a study of the two cases in a roughly comparative project promised to yield clues to a suite of questions about publics and experts, power and participation, and expertise and sociotechnical change.

Then the tsunami of March 11, 2011 devastated the Pacific coast of Tōhoku, and Japan's relentless seismicity reconfigured not only the lives and material reality of its eastern seaboard, but also this dissertation (admittedly, an effect of somewhat less significance). In fact, my initial reaction (aside from shock and horror and awe) was to forge ahead with the dissertation as planned, with the "3.11" disasters featuring merely

as an epilogue or perhaps a narrative framing device. I proceeded with a research visit to New Orleans in the summer of 2011. As much as I wanted to go to Japan to join volunteer efforts, as well as to research the ongoing events, I was yet unsure of how much of my work to date would be irrelevant, how much ground would need to be re-tread, or how much would need to be explored anew. Furthermore, I knew that the situation in Japan was chaotic and in flux, and I was unsure of what approach — empirically, methodologically, theoretically — would be most appropriate or fruitful.

On the other hand, the March 11 disasters almost immediately began to alter my work, intensifying my focus upon both Japan and catastrophe in general. Shortly after the disasters, there was an encouraging surge in interest among academic colleagues to "do something," including simply to study, teach, learn and understand the situation. Yet Japan specialists are few, and my colleagues and I recognized that many educators who might want to incorporate study of various aspects of the disasters in their courses may have lacked a basic familiarity with the relevant literature and thus faced a daunting task. With Lisa Onaga and Honghong Tinn, then two graduate student colleagues with expertise in Asia and Japan studies in Cornell's Department of Science & Technology Studies, I started *Teach 3.11*, a blog of film and academic literature annotations aimed at helping students and teachers understand the socio-historical context of recent and ongoing events. Further, the disasters helped to inform a course I developed and taught in the fall semester of 2011 on "technology versus nature in Japanese history," in which my students and I explored Japan's long, ambivalent relationships with "nature" and with "technology."

After I arrived in Japan at the end of 2011, my project transformed. The actors who had been involved with Kobe's recovery were heavily engaged with similar efforts in Tōhoku, and although many municipalities on the northeastern coast had released initial recovery plans, the local recovery planning process, and the overall progress of the region's recovery, had barely begun. I felt compelled, both from the standpoint of research opportunity as well as, somehow, moral obligation as a concerned human being, to shift my focus to Tōhoku. As the ongoing recovery planning on the Sanriku coast became central to the project, the relevance of New Orleans faded, while Kobe's recent history took on a new significance.

It is my sincere hope that the resulting dissertation is one that does justice to the dignity of the extraordinary people of Kobe and Tōhoku, and their respective struggles to recover from horrific catastrophes. "Recover" can be used either as an intransitive or a transitive verb, and the multiple processes of "recovery" are ones in which *hisaisha* ("disaster-struck people") work to recover their homes, their communities, their ways of life, the meanings of their pasts, and the imaginaries of their futures. As Kobe's residents can attest, identifying a definitive end to these processes is difficult, if not impossible. Nevertheless, by helping to understand the ongoing processes of recovery, I hope that this dissertation may in its own small way contribute to a better recovery for the residents of Tōhoku, and for all recovering *hisaisha*, and their supporters, everywhere.

1. INTRODUCTION: PARTICIPATORY RECOVERY PLANNING AS PUBLIC ENGAGEMENT IN SOCIOTECHNICAL CHANGE

> ... rather than saying that we give back to Tōhoku what we received from Tōhoku, I would rather say that the things we received from people in the past, we return to the people of the future…. Therefore, there is absolutely no need for anyone to thank us. We are investing for the future. This means that Tōhoku is in no way the place where we teach the lessons of Hanshin-Awaji; it is the place for us to learn. We don't go there as *sensei*; we go there as students.
>
> —Seiji Komori[1]

1.1: From Kobe to Tōkohu

Even on the fastest of Japan's *shinkansen* "bullet trains," the *Nozomi* ("Hope"), it takes the better part of a day for you to reach the town of Kesennuma from the city of Kobe. From Shin-Kobe station, it's just a few minutes to the first stop in Osaka, about 30 minutes to Kyoto and an hour to Nagoya. This is an early morning train, so the salarymen sitting next to you are noisily unwrapping and consuming their excessively aromatic breakfast *eki-ben* ("station-bento," shorthand for train station-bought meals in disposable bento boxes). Gliding effortlessly on smooth, jointless tracks, you zoom eastward under mountains, over rivers, past rice fields, tea farms, rural villages, and industrial facilities. When another train passes in the other direction, the windows and wall of your car bend inward from the air pressure, as the full 1300-foot length of the other train comes and goes within less than a second. Your *shinkansen* skirts the base of Mount Fuji, its divine peak vibrating with an almost sentient majesty, as the salarymen next to you snore in their seats. About two and a half hours after leaving Kobe, you reach the terminal at Tokyo station. There, you rush to make your transfer, a

1. Komori interview (May 2012).

northbound *Yamabiko* ("Mountain Echo") *shinkansen* leaving 10 minutes later. Once out of the Tokyo metropolitan area, you pass broad, flat agricultural lands, stopping briefly in Fukushima city before whooshing through an area that was a radioactive no-go zone in the days after March 11, 2011. An hour and a half after leaving Tokyo, in Sendai, the largest city in the Tōhoku region,[2] you are transferring again, to a northbound *Hayate* ("Swift Wind") *shinkansen*. After thirty minutes you disembark at Ichinoseki, a smallish industrial town in Iwate Prefecture, a number of miles inland from the coastal area hardest hit by the tsunami. After the gleaming urban centers of Kobe, Tokyo and Sendai, Ichinoseki seems like a shabby, semi-rural outpost. There, you board yet another train, the eastbound *Sūpah Doragon* ("Super Dragon"). Despite its formidable name, it is not another *shinkansen*. Rather, it is a *wan man* ("one man") — that is, a small train driven and conducted by a single crewman, just one or two cars long. The Super Dragon travels at a languid pace, kerchunk-kerchunking its way downstream for nearly an hour and a half until it finally reaches its terminus at Kesennuma on the coast.

Kesennuma is situated on a rugged coastline of forest-clad, rocky mountains girding narrow valleys — scenery so spectacular that you may wonder why it took a catastrophe to bring it to your attention. Even more than two years after the disaster, you see heart-breaking and frankly awesome devastation in the valleys, juxtaposed with untouched buildings and infrastructure at higher elevations. You still see hills of rubble, trashed cars and boats, gutted buildings, and broad fields of rectangular building foundations where once there were whole neighborhoods. You see construction workers and heavy equipment and the uniform, cross-braced,

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2. Tōhoku (東北, literally "northeast") is the northeastern area of Honshu (Japan's largest island), comprising six prefectures, including the three most affected by the Great East Japan Earthquake and tsunami (東日本大震災, *Higashi-Nihon Dai-Shinsai*): Fukushima, Miyagi and Iwate.

prefabricated blocks of temporary houses, temporary shops, and temporary offices. You meet kind and hard-working locals who laugh and joke with you, and then tell you their personal stories of tragedy. With a shrug, the heroic determination to overcome and to rebuild transforms into the acknowledgment that the quotidian tasks of carrying on are just the way things are now.

This is the environment in which the relentless, uncertain work of cleanup, reconstruction, and "recovery" is proceeding. This is "the geography of crisis and opportunity."[3] Here, local communities are engaged in a range of recovery efforts, including public participation in recovery planning through neighborhood-based *machi-zukuri* ("community building")[4] organizations. In this context, local residents — many still displaced and living in temporary homes — are working with non-local technical experts to re-imagine the future *sociotechnical* configurations of their communities.[5] A core group of these experts performed similar duties in Kobe after the Great Hanshin-Awaji Earthquake of 1995.[6] Many of them have been making the

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3. Edgington (2010) is the source of this phrasing. A frequent discourse in the aftermath of catastrophe is the discourse of "unprecedented opportunity" (Quarantelli, 1999; Olshansky, 2002; Olshansky et al, 2005; Tierney et al, 2006; Edgington, 2010; Orihara & Clancey, 2012).
4. The meaning and significance of "*machi-zukuri*" is discussed in detail in the next section of this introduction.
5. The *sociotechnical* concept has been developed by numerous STS scholars — for example, Winner (1980), Pinch & Bijker (1984), Bijker, Hughes & Pinch (1987), MacKenzie & Wajcman (1987), Bijker & Law (1992), Kline & Pinch (1996), Jasanoff (2003), Jasanoff (2004), Jasanoff & Kim (2009). Although these and other scholars describe distinct variations on the concept, the general idea is that "technological" artifacts and systems are socially constructed, or that technology and the social world are co-constructed. That is, sociotechnical systems comprise not only physical components but also the debates, negotiations, assumptions, values and contested knowledge claims that come to be inscribed in the structure and workings of the material artifacts, as well as the "ensembles" of relevant social groups, institutions, practices, norms, market conditions and regulatory frameworks in which technologies are embedded and without which they could not function. Society is embedded in technology even as technology is embedded in society.
6. This event (阪神淡路大震災, *Hanshin-Awaji Dai-Shinsai*) is often referred to simply as "the Kobe earthquake" or as "Hanshin-Awaji" or even, given sufficient context, just "Hanshin." The temblor's epicenter was located at the northern tip of Awaji Island. "Hanshin" (阪神)

arduous trip from Kobe to Kesennuma and other towns in Tōhoku at least once per month, since late 2011. Some receive compensation for their expenses from Hyogo Prefecture, while others are funded by their universities or by other organizations. Since a large portion of hotel stock was destroyed by the tsunami and what remains is largely booked by armies of construction workers, these recovery planning experts often must find creative solutions to the problem of accommodation.[7] Thus, despite the fact that Japan is among the wealthiest and most efficiently connected societies on Earth, Tōhoku, with its relative inaccessibility and its lack of available accommodation, is a surprisingly difficult location to visit.

This distance is not only geographic. Languishing on Japan's periphery, the region never fully shared in the heights of the nation's economic success, including the "bubble" era of the 1980's. A vast area comprising a large city, several small towns, and a number of fishing and farming villages, the region is considered *inaka* or "rural" by Japanese standards. The density, distribution, and patterns of development are quite different from American rural environments, but it does share features of contemporary American rurality: a culture of rugged self-reliance, an aging and declining population, an economy based largely upon exploitation of natural resources through agriculture, mining, fishing and forestry. For centuries, the agricultural, touristic and extractive industries of Tōhoku have served Japan's capital to the south — Tokyo (née Edo) — in a relationship that might best be described as

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is a portmanteau of alternate readings of two characters from the names of Osaka (大阪) and Kobe (神戸), the two largest cities affected. It is also the name of a company that runs a train line between the two cities and owns the region's most popular professional baseball team, the Hanshin Tigers (who are to Tokyo's Yomiuri Giants roughly what the Boston Red Sox are to the New York Yankees). However, while Osaka endured shaking and limited damage from the earthquake, Kobe was substantially devastated.

7. One team of such experts working in Kesennuma, for example, stays at the house of the team leader's friend. This structure, the first floor of which was damaged by the tsunami, has numerous small bedrooms, as it had been used as a bordello until the 1930's.

"colonialistic."[8] Tōhoku's post-war history is one of gradual social disintegration and environmental degradation, in tandem with progressive entanglement in international markets and globalized flows of information, capital, and technology — processes that have sharply accelerated in the post-disaster period of nascent "recovery," even while the growth of urban centers such as Tokyo and Sendai has surged.[9]

In this dissertation, I examine a specific part of that recovery process: community-based participatory recovery planning, or "PRP" for short,[10] enacted by a core group of experienced PRP experts from Kobe[11] and local, non-expert residents of Kesennuma and Minami-Sanriku, two towns in Miyagi Prefecture on the tsunami-devastated Sanriku coast. Based upon 18 months of *in situ* ethnographic and historical fieldwork, including participant-observation, interviews and documentary analysis, I show how PRP — specifically the "Kobe Style" of PRP — became a coherent field of practice and expertise after the Great Hanshin-Awaji Earthquake, how a specific group of academics and professionals became "experts" in that field at that time, and

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8. A popular, recent Japanese book, *Tōhoku Saisei* (東北再生, "Tōhoku Rebirth"), argues that Tōhoku residents should seize upon the recovery as a chance to break away from this past of exploitation and dependence upon Tokyo, and to establish a more sustainable, independent society and economy.
9. I discuss this recent history in some detail in Chapter 3.
10. "PRP" is my own acronym for "participatory recovery planning," which itself is shorthand for "public participation in post-disaster recovery planning." It is neither an actors' term nor a unified and organized institution, although as I will show (especially in Chapter 2), the "Kobe Style" of PRP has been institutionalized, formally and informally. Furthermore, Kobe's experts have influenced an ethos of PRP, enacted through *machi-zukrui kyōgikai* and similar community-based organizations, widely shared by many planners, architects and other practitioners throughout Japan, particularly in academia. (Less so among private contractors and government agencies — another topic explored in the following pages.)
11. This dissertation is, in a sense, an extended elaboration of exactly what I mean by "PRP experts". For now, it is important to note that my usage of "PRP experts" refers to individuals who are experts *in the process of PRP itself*. Like other "technical experts," conventionally construed, they "contribute expertise" to the process in the form of specialized advice based on their disciplinary know-how (e.g., architecture, engineering or urban planning); in addition, they *study and facilitate* the very processes of public participation in recovery planning.

how this same group is now playing an important role in the ongoing recovery planning in the aftermath of the March 11, 2011 earthquake and tsunami. They are exploiting Tōhoku as a training ground for their successors and as a milieu for reconsolidating their expertise and insuring their legacy. Thus, PRP in Tōhoku is a process through which both the "community" of experts and the "community" of local residents strive to re-construct themselves and each other.[12]

Drawing from literature in science and technology studies (STS) and public engagement with science (PES)[13] as well as urban planning, sociology and other fields, I interrogate the nature of expertise in a PRP context, including how it is constructed and maintained. I examine what kinds of knowledge are salient, and what are their respective roles. I investigate the strategies that are employed by geographically, culturally and epistemically disparate communities as they endeavor to work together toward mutual understanding, agreement, and concrete plans for re-imagining and re-shaping the sociotechnical order of their communities. Ultimately, this analysis interrogates, challenges and contributes its own conclusions to the rich tradition of scholarship in STS concerned with "lay/expert" interactions, "local" vs. "expert" knowledge, and public engagement with technology and technical expertise.

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12. Note that actors themselves generally use the terms *senmonka* (専門家, "expert" or "specialist") and the English-derived *konsarutanto* (コンサルタント, "consultant") to describe those who are helping to facilitate *machi-zukuri* and related PRP endeavors. *Senmon* (専門) means "specialty" or "subject of specialization/expertise," while *senmonteki* (専門的) is usually translated as "technical" or sometimes "professional."

13. Here, "PES" is used to distinguish work of roughly the last two decades from prior work in public understanding of science (PUS). For reviews of these literatures and their history to the early and mid-1990s, see Lewenstein (1992) and Wynne (1995). As I discuss in greater detail elsewhere in this dissertation (especially in Ch. 4), PES emerged, in part, as a reaction against PUS's problematic assumptions about the character of technical knowledge, experts, and publics. I am not the first to make this distinction — cf., for example, Durant (2008), p. 18.

1.2: The research opportunity

Underpinning this dissertation is the fundamental supposition that there is merit in bringing the insights of STS (science and technology studies) and PES (public engagement with science and technology) to bear on the study of post-disaster participatory recovery planning (PRP), and, conversely, that the empirical study of PRP may serve to challenge, highlight, or supplement the insights of STS and PES. After all, PRP is a process by which human beings intentionally design, shape, and co-construct the "hard" technological infrastructure of the "built environment" — roads, buildings, seawalls, public transportation systems, water and waste management systems, parks, monuments, arrangements of public and private spaces — along with the "soft" social infrastructure of a community — cadastral boundaries, local associations, administrative institutions, business investments, market structures, consumption habits, resource usage and supply chains, the mundane rhythms of daily life, cultural norms, values and practices — and the interdependent relationships between them. It is this complex, intricately woven tapestry to which I refer when I invoke the "sociotechnical order (or configuration)" of a community. Moreover, PRP is a site of interaction and collaboration between technical experts (who are often non-local), and local residents, who are rarely experts in the relevant "technical" fields of recovery planning.

These fields — architecture, urban planning, geography, civil engineering and design, construction, law — have received *relatively* scant attention from STS scholars thus far (and almost none from scholars of PUS or PES). This is somewhat surprising, given that the purview of these fields is the shaping of the built environment, including its relation to the “natural” environment, for human use and habitation. Few enterprises purport to wield such a powerful influence over the sociotechnical configurations of communities, cities and societies. Indeed, when Langdon Winner

sought to illustrate the profound and lasting socio-political impacts of specific choices in the designs of technological systems, he primarily cited cases of urban planning and architecture.[14] Robert Moses and his Long Island bridges may be the most famous example, but Winner's essay invokes a number of other cases in an extended discussion of the "built environment" professions and the technological infrastructure that is their bailiwick. Winner's essay is a landmark of the small and modest district within the STS polity that has been constructed on studies of the built environment.[15] This project aims to instigate further development of that subdivision. Thus, implicit in the current project is a "meta" argument, which is that it is indeed appropriate — and important — for STS scholars to investigate the processes by which that constellation of sociotechnical infrastructures and artifacts known as "the built environment" is changed.

Meanwhile, disaster studies in general and STS-inflected studies of disasters and their aftermaths, in particular, have been gathering considerable momentum in recent years, moving toward the culmination of a long *de facto* tradition of "Disaster STS" (DSTS).[16] Akin to the long heritage of fruitful scholarship in scientific

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14. Winner (1980).

15. Other notable edifices of this district include Hughes (1983, 2004), Latour (1992, 1996), Kranakis (1996), Aibar & Bijker (1998), Latour & Hermant (1998), Sims (1999), Star (1999), Bowker & Star (1999), Bijker & Bijsterveld (2000), Knowles & Saarinen (2001), Gieryn (2002), Hommels (2005a, 2005b), Clancey (2006a, 2006b), Bijker (2007a, 2007b), Hård & Misa (2008), Pinch (2010), Barrios (2010, 2011), Allen & Maret (2011), Knowles (2011).

16. E.g., Perrow (1984), Wynne (1989, 1992, 1996), Vaughan (1996), Fortun (2001), Petryna (2002), Klinenberg (2002), Clancey (2006a, 2006b), Allen (2007), Frickel & Vincent (2007), Hilgartner (2007), Shrum (2007a, 2007b), Knowles (2011). In addition to a wave of special journal issues in the wake of Hurricane Katrina (e.g., *Social Studies of Science* 37:1, 2007; *Technology in Society* 29, 2007), as well as several edited volumes (e.g., Lakoff, 2010; Dowty & Allen, 2011), recent years have seen a proliferation of conferences devoted to disaster studies and DSTS. Not coincidentally, recent years have also witnessed a surfeit of "natural" disasters, such as Japan's quake and tsunami (2011), the Indian Ocean tsunami (2004); devastating tropical cyclones in the U.S. (2005), Myanmar (2008) and Phillippines (2013); violent tornado outbreaks in the U.S. (2011); earthquakes in Indonesia (2004),

controversies and technological failures, DSTS has recently been the subject of a call for an institutionally coherent program of research as a major sub-field within STS.[17] Across the social sciences, it has become a virtual truism that catastrophes provide unique opportunities for both scholars and actors to apprehend, and potentially reform, otherwise inaccessible structures and "black-boxed" dynamics of societies.[18] Built environments, sociotechnical systems, political institutions, and cultural norms, practices and imaginaries all become potentially open to scrutiny and intervention in the aftermath of a catastrophe. This idea is similar to the principle which underpins the tradition of "controversy studies" within science studies,[19] as well as several strains of technology studies, including the social construction of technology (SCOT)[20] and studies of technological testing, failure, and accidents.[21] To wit, whether an object of inquiry is a material artifact, a scientific theory, or a society, it is most amenable to study and intervention prior to the "closure" and stabilization of its form,[22] or after it has suffered some catastrophic rupture to its context[23] or its constitution — especially when the latter is followed by strenuous efforts toward (social) reconstruction.[24]

"Public participation" in decision-making processes and other endeavors that

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Pakistan (2005), China (2008), Chile (2010), Haiti (2010) and New Zealand (2010, 2011); floods in Pakistan (2010), Australia (2010-11) and Thailand (2011); as well as mudslides in Brazil (2011), massively lethal heat waves in Western Europe (2003) and Russia (2010), and proliferating areas of severe drought across the globe.

17. Fortun & Frickel (2012).
18. This is a point made by many; e.g., Wynne (1988), Pinch (1991), Bijker & Law (1992), Jasanoff (1994), Downer (2011), Dowty & Allen (2011), Fortun & Frickel (2012).
19. E.g., Collins 1985, Latour & Woolgar 1986, Collins & Pinch 1998.
20. E.g., Pinch & Bijker 1984, Bijker & Pinch 1989, Kline & Pinch 1996.
21. E.g., Perrow (1984), Vaughan (1986), Wynne (1988), Pinch (1991), Pinch (1993), Sims (1999), Downer (2007), Downer (2011).
22. On the other hand, studies have also shown that users can "re-open," reconfigure and reinterpret technologies. E.g., Akrich (1992), Kline & Pinch (1996), Oudshoorn & Pinch (2005).
23. Akrich (1992).
24. Hilgartner (2007).

produce or depend upon specialized knowledge has been an important site of practice and research across a number of professional and academic fields for some time now. Scholars in fields such as STS, PES, urban planning, international development and political science all share a strong commitment to the study and practice of participatory methods and public engagement. Yet dialogue between the fields remains remarkably rare.[25] Although this project is situated primarily within STS and PES, it also aims to instigate and provoke that broader dialogue.

Participatory processes are generally considered to be a more just means toward higher quality, more equitable and more sustainable ends than non-participatory or "top-down" methods. In the abstract, and viewed against the foil of "top-down" processes in which experts or authorities dictate from on high, the promise of public participation may be distilled to two, complementary points. Through the relatively open and transparent sharing of information and the involvement of multiple stakeholders, including traditionally under-represented groups, it is seen as a more just and democratic means to achieving an end (such as a policy or a planning outcome or some other collective action or decision).[26] And by subjecting proposals to deliberation and taking into account multiple perspectives and a richer, finer-grained knowledge of local conditions, its ends are seen as being of higher quality and more sustainable

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25. The STS studies of the built environment mentioned above do engage to some degree with planning and architecture literature. Hommels (2005a, 2005b), in particular, has argued that STS needs to pay more attention to cities as technologies, and has tried to establish "a common interdisciplinary playground" for STS and the urban planning and urban studies literatures. In addition, some literature in the planning field has invoked STS scholars and concepts. For example, Brain (2006) cites actor-network theory, while a recent volume examines *Urban Planning as a Trading Zone* (Balducci & Mäntysalo, 2013), exploiting both Galison's "trading zones" concept as well as Star & Griesemer's "boundary objects" to help theorize inter-group and inter-disciplinary conflict, negotiation and collaboration in planning processes. A chapter of that volume (Calvaresi & Cossa, 2013) also invokes "interactional expertise" (Collins & Evans, 2002; 2007).
26. Friedmann (1992), Jasanoff (2003), Latour (2004), Leighninger (2006), Ganapati & Ganapati (2009).

politically, socially, and often environmentally.[27]

The vast literature on "public participation" describes a dizzying array of approaches.[28] In STS and PES, there is citizen science or "public participation in scientific research" (PPSR);[29] there are consensus conferences, science shops, science cafes, science cabarets, and participatory mapping exercises. In the field of planning, there are charrettes, neighborhood plans, district plans, and there is debate over which approach is most "effective:" direct participation, advocacy planning or collaborative planning.[30] Anglophone planning scholars fret that "the incorporation of citizen participation into conventional planning... has produced frustration, disillusionment, and cynicism on all sides...."[31] My research project is motivated, in part, by the hope

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27. Variations on these ideas may be found in, e.g., Funtowicz & Ravetz (1990), Harding (1991), Irwin (1995), Scott (1998), Taylor (2001), Burby (2003), Jasanoff (2003), Lee & Roth (2003), Innes & Booher (2004), Latour (2004), Leighninger (2006), Skogan (2006), Ebrahim & Weisband (2007), and Ganapati & Ganapati (2009).
28. At least since Arnstein's seminal "Ladder of Participation" essay (1969), participatory exercises have often been characterized as "having high levels" or "having low levels" of participation. Yet ranking "levels" of participation along a single axis fails to capture the diversity of forms of participation, and there are as many ways of evaluating this "level" as there are of defining the goals of "participation." Given these issues, it is unsurprising that a literature has developed around the evaluation of participatory exercises. E.g., Renn et al (1993, 1995), Rowe & Frewer (2000, 2004, 2005), Ryfe (2007).
29. Bonney et al (2009).
30. E.g., Yoshimura & Yazaki (1999), Innes & Booher (2004), Lane (2005), Brain (2006), Olshansky (2006), Reardon (2009), Ganapati & Ganapati (2009), Tanaka et al. (2009), Grant-Smith & Edwards (2011), etc. Part of the debate is over what should count as "effectiveness" in this context. Should it be based upon evaluations of the extent to which the exercise is "participatory," or upon some other measurable outcome? Forester et al (2008) argue that their approach to local planning in post-Katrina New Orleans, in which they interviewed residents in the field and then went back to drafting room to translate the residents' desires into plans, produced more representative results — judged by residents' own pleased reactions — than the "participatory," expert-facilitated neighborhood planning that characterized the Unified New Orleans Plan (UNOP) and which resembled, to some degree, *machi-zukuri*-based recovery planning in Kobe. One New Orleans-based architect who helped facilitate UNOP complained to me that the built-environment professionals should have *led* the process, rather than *"facilitate"* it. (Waggonner interview, 2010.) On the other hand, post-UNOP surveys showed broad, overall satisfaction with the planning process among participants (Lukensmeyer, 2007).
31. Brain (2006), p. 18. Brain, in a piece directed toward a readership of designers, architects

that the study of a few empirical examples of PRP would produce practical knowledge about some subset of the broader galaxy of public engagement and participatory processes, to help make sense of them and to help guide future efforts. I wanted to know which strategies and which practices worked best, given the specific conditions of PRP in these particular Japanese communities. I'll return to these issues in the concluding chapter.

Participatory planning in Japan is generally conducted through the institution of neighborhood-based *machi-zukuri kyōgikai* (まちづくり協議会, "community-making associations") or similar organizations**.** Historically, these grass-roots groups positioned themselves in opposition to *toshi-keikaku:* conventional urban planning (都市計画, "city planning"). Speaking of *toshi-keikaku* and *machi-zukuri* as "ideal types," as portrayed both in scholarly literature and commonly by actors, *toshi-keikaku* is usually seen as a largely "top-down," technocratic process, which aims to remake the built environment according to the goals of authorities with relatively little regard for local contexts or qualitative social consequences, which, in turn, often include the disruption of local social networks and ways of life. In contrast, *machi-zukuri* is generally seen as characterized by local, public participation in the planning process, including the framing of problems and questions to be addressed, as well as the goals to be achieved.

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and planners, argues that participatory processes have largely failed to adequately reflect the will of participants and have also failed to meet "our aspirations for democracy and social justice." Campanella (2011) has argued that the American planning field's overwhelming concern with participatory input and its post-Jacobs constitutional allergy to classically modernist master plans have contributed to a disciplinary identity crisis and left the big, bold ideas of built-environment design to — horror of horrors — *architects*. Likewise, Krieger (2000) asserts that "greater public involvement in the planning process has had the unanticipated consequence of diminishing regard for professional expertise," since planners have become "mere *absorbers* of public opinion, waiting for consensus to build" (p. 208-209). In the same volume, Rybcynski (2000) asks, "Where have all the planners gone?" (p. 210). For these authors, the planner's role as participatory facilitator is ineluctably incompatible with the planner's putatively more fundamental role as *designer*. As I will show in this dissertation, PRP experts from Kobe take the opposite view, that these two roles are continuous.

Typically, those goals include qualitative measures of success — such as improvements in quality of life — and the steps to achieving them tend to be incremental, whereas *toshi-keikaku's* objectives are often quantitative benchmarks of narrowly defined notions of efficiency and productivity — e.g., calculations of costs, tax base expansion, or traffic throughput — that are often achieved through short-term, larger scale engineering projects. Thus, whereas *toshi-keikaku* approaches generally view planning and sociotechnical change in terms of a context-free "technical" rationality, manifested in physical plant and material artifacts, *machi-zukuri* approaches claim to be more socially and technically robust because, stated crudely, they ideally take seriously both the "social" and the "technical" "halves" of *socio-technical* co-construction. In short, *machi-zukuri* may be summarized as "creating physical space as well as human network in local community [through] soft-oriented bottom-up community planning activities and/or hand-on community design towards the betterment of the environment [sic]."[32]

Thus, PRP, as it has been practiced through *machi-zukuri* in Kobe and now in Tōhoku, fundamentally represents an opportunity to study an empirical example of public participation in an exercise directed toward sociotechnical change, in which non-expert publics interact with "experts," and in which "local knowledge" and local concerns, as well as "expert knowledge," play important roles. Originally I saw this project as an opportunity specifically to study processes of *upstream* public engagement in sociotechnical change — that is, prior to the inscribing of values, norms and

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32. Nishimura (2005), p. 2. The English-language literature on *machi-zukuri* is small but burgeoning. See, for example, Hein (2001), Evans (2002), Shaw & Goda (2004), Sorenson (2004), Nishimura (2005), Olshansky et al (2005), Kobayashi (2007), Sorenson & Funck (2007), and Edgington (2010). A selection of the more extensive Japanese literature includes Makisato (1981), Endo & Miyanishi (1981), Mori (1984), Tamura (1987), Hirohara (1989), Konno (1991), Honma (1994), Ito (1996, 2000), Matsuno (1997), Nakamura (1997), Kobayashi (1998), Miyoshi (1998), and Watanabe (1999).

assumptions into sociotechnical systems.[33] I intended to extend the metaphor of upstream engagement from its more typical context of emerging and risky technologies to the less glamorous but equally important context of post-disaster PRP. However, as I discuss in greater detail in the closing section of this chapter, I have come to question the usefulness of the "upstream" metaphor in this case.

Prior studies of interactions between technical experts and lay publics have rarely treated these two groups symmetrically. Unfortunately, many accounts of "lay-expert" interactions either subscribe to the so-called "deficit model" of an irrational and technically ignorant public, or vehemently oppose that tradition by portraying the "lay" public with greater sympathy and in richer, subtler detail than the "experts."[34] Yet such a reversal of sympathies actually contravenes the most compelling argument against the "deficit model": the idea that "lay knowledge is not an impoverished or quantitatively inferior version of expert knowledge; [rather,] it is qualitatively different [and] no less sophisticated than specialist expertise."[35] Because they are "qualitatively different," neither "expert" nor "local" (or "lay") ways of knowing can make blanket claims to epistemological primacy. This suggests that points of friction or slippage between, for example, fishermen and planning consultants cannot merely be chalked up to the ignorance or "wrongness" of one group and the knowledge or "correctness" of the other (whether the arena is planning or fishing). Rather, they must be evaluated based on a rich and symmetrical understanding of the disciplinary, historical and cultural contexts that condition the ways that each group engages, understands and represents the world. Hence this project aims to build a detailed ethnographic and historical understanding of both the Kobe-based experts and the non-expert residents

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33. Jasanoff (2003), Wilsdon & Willis (2004), Wilsdon et al (2005). Cf. also Irwin (1995), Sclove (1995), Irwin & Wynne (1996) for similar ideas without using the term itself.
34. E.g., Wynne (1989).
35. Bucchi (2008), p. 451.

involved in Tōhoku's recovery planning.

Initial research indicated that this group of PRP experts had emerged from the ruins and the recovery of Kobe, and that these experts were now applying their know-how in Tōhoku. By studying them, I wanted to learn how technical expertise in the built environment fields is constructed and maintained through the study and practice of PRP. I expected that my research would confirm the notion, common in STS and PES literature, that technical experts are, as a rule, unreflexively and institutionally blind to the situated character of knowledge, the nuances of local context, and the varieties of ways of knowing. At the same time, I wanted to learn more about the specific ways that experts and non-experts interact, communicate and collaborate. Do they deploy boundary objects?[36] Employ trading zones?[37] Enact various forms of para-linguistic translation? Achieve "interactional expertise"?[38] Is the so-called "lay/expert divide" incommensurable?[39] To what degree do the answers to these questions vary among subgroups within "experts" or "non-experts"? Which PES frameworks, if any, best describe the empirical practices of PRP? How are the questions, choices and salient forms of knowledge determined? Whose expertise matters, and why — or, put another way, how is expertise established in this context? How is it sustained and reproduced? In what ways does it matter that experts and locals come from different communities, distinct "social worlds,"[40] or that they represent alternative "forms of life"?[41]

Although there are several groups of built environment experts involved in

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36. Gieryn (1983), Star & Griesemer (1989).
37. Galison (1997), Gorman (2010).
38. Collins & Evans (2002, 2003, 2007), Collins et al (2010).
39. Kuhn (1962).
40. Clarke & Star (2008).
41. Wittgenstein (1953).

Tōhoku's recovery — including those working in government planning agencies at all levels (national, prefectural, and municipal), as well as those working for private contracting firms on behalf of these agencies — this dissertation focuses primarily upon those PRP experts who are working most closely with the communities of Tōhoku through *machi-zukuri* and similar participatory processes. Specifically, it focuses upon a few Kobe-based PRP experts who make the long trek once or twice a month to a few districts in Kesennuma and Minami-Sanriku within Miyagi Prefecture, and the local residents with whom they are engaged in recovery planning.

One final note on research opportunities in the wake of the so-called "triple-disasters" of "3.11." Obviously the tsunami wreaked more tragedy than the acute devastation of wrecked communities; the nuclear disaster at Fukushima which began to unfold on March 11, 2011, continues to this day, and will persist, in the form of widespread radioactive contamination, for decades or centuries. It has understandably attracted a great deal of attention from STS scholars internationally. However, it is beyond the scope of this dissertation to address the range of complex issues presented by what has become known simply as "Fukushima." It is worth noting, however, that when one considers the crucial role of tsunami defenses, infrastructure, and other sociotechnical features of the built environment — including their failures — the tsunami destruction on the Sanriku coast is just as much a "natech disaster" or an "envirotechnical disaster" as the Fukushima nuclear accident.[42]

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42. Shorter and perhaps more convenient — albeit less evocative — than Kai Erikson's "new species of trouble," environmental sociologists now frequently use the portmanteau *natech* to refer to these "natural-technological" catastrophes. (E.g., Picou, 2009; Andreadakis et al, 2012.) Brett Walker, an environmental historian of Japan, speaks of *hybrid causation* in catastrophes that have conventionally been regarded as "technological" in etiology, such as the case of widespread mercury poisoning at Minamata. Other environmental historians have adopted the term *envirotechnical* to capture the notion of the co-construction of ecological and (socio-)technological systems more generally (e.g., Finlay, 2010; Pritchard, 2011, 2012). Finally, a more conventional concept of causation is worthy of mention because of its association with the influential Normal Accident Theory. In the aftermath of

Fig. 1-1: These buildings, erected after Kobe's earthquake, house the Kobe Earthquake Memorial Museum and a number of institutions devoted to the study of disaster risk reduction and recovery, including the Asia Disaster Reduction Center (ADRC), the Disaster Reduction and Human Renovation Institution (DRI), and the International Recovery Platform (IRP), with which I was affiliated as a visiting researcher and Fulbright-Hays Fellow. A third building to the left is a major branch office of the Japan International Cooperation Agency (JICA), analogous to USAID. These buildings, plus an art museum, hospital, shopping center, and a large cluster of condominium high-rises (with hundreds of both public and private units), make up the HAT Kobe district (HAT="Happy Active Town"), an area that was conceived before the earthquake but not planned or constructed until afterwards. Ikuo Kobayashi, the figure who is arguably most responsible for the institutionalization of participatory (recovery) planning in Kobe, if not Japan, was the lead planner on the project. HAT Kobe is built upon formerly industrial waterfront land and landfill. By purchasing the land from Kobe Steel and Kawasaki Heavy Industries and developing the HAT Kobe district, the city's planning department hoped to help revitalize Kobe's economy, resettle thousands of residents who had lost their homes in the earthquake, and reinvigorate community through strategic use of expanded public spaces. As a public center of disaster-related expertise, the institutions pictured here further served to symbolize Kobe's recovery as well as its commitment to furthering disaster management and humanitarian action globally.[43] Photo by author (February 2013).

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the Bhopal disaster, Charles Perrow expanded his theory to more explicitly recognize the importance of *ecosystem accidents*, in which certain etiologically "technical" accidents ultimately result in social and ecological catastrophe.

43. Kobayashi interview (March 2012).

1.3: Research methods and challenges

From the beginning, this has been an exploratory, qualitative research project. As such, the research themes and questions described above, based largely upon issues and debates within STS and PES literature as well as upon basic knowledge of the empirical sites, have operated as *sensitizing concepts* throughout the processes of research and analysis.[44] The strength of an exploratory, ethnographic approach guided by sensitizing concepts and open inquiry, as opposed to, say, a targeted approach directed by hypotheses and specific questions, is that the researcher remains open — and "sensitized" — to a broader range of sources, sites, and types of meaningful data. To use a signal-noise metaphor, the targeted approach directs the researcher to disregard, not only larger chunks of apparent noise, but also any possible coherent patterns that do not fit the previously specified forms of acceptable signals. In contrast, the exploratory approach encourages the researcher to recognize, and consider further investigating, unanticipated patterns that could be read as meaningful signals. At the same time, the sensitizing concepts provide enough guidance and structure that the researcher is able to sift through the data, identifying potentially meaningful patterns and disregarding irrelevant noise, relatively efficiently. A disadvantage, vis-à-vis a more targeted approach, is that the exploratory approach may require more time to be spent collecting and analyzing broader and more diverse sets of data.

In this instance, I spent about 18 months in the field, conducting roughly three consecutive phases of fieldwork and analysis, plus a final phase of analysis after returning from the field. At the risk of some oversimplification, I would describe these phases roughly as (1) broadening, (2) deepening, (3) sense-making, and (4) articulating. In the first phase (about 3-5 months), the primary objective of my research activities

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44. Blumer (1954), Van de Hoonaard (1997), Bowen (2006).

was to broaden my understanding of the project's sites, actors and objects of inquiry. This included identifying key individuals, institutions and social groups, mapping the relationships between them, and establishing access. The second phase (about 7-9 months) was about deepening my knowledge of these sites, objects and actors, with a particular focus on those that seemed to be the most promising sources of fruitful data. In the third phase (about 6 months), I began trying to make sense of what I was learning by pulling the information together into several coherent narratives. Although I had taken notes throughout the first two phases (and, of course, had produced proposals proffering prospective analyses), it was not until the third phase that I began attempting to write significant analytical material based on substantial fieldwork. Lastly, the fourth phase (about 4 months), focused on formulating and articulating a final, analytical narrative, commenced at the end of my fieldwork. As noted, these descriptions of distinct project phases are somewhat simplified; although the emphases and immediate objectives evolved, data collection and analysis worked as a dyad throughout the duration of the project, informing each other dialogically.

The primary methods of data collection included participant-observation, interviews, documentary analysis, and audio and photographic documentation. From December 2011 through August 2013 — minus two months in the summer of 2012 — I was based in Kobe, Japan, and made frequent, regular visits to Kesennuma, Minami-Sanriku, and other parts of Tōhoku. In all locations, I attended formal and informal events, formed relationships and interacted extensively with residents and experts, gathered documentary materials (printed as well as audio-visual), took photographs, and conducted unstructured and semi-structured ethnographic interviews. In addition to taking live notes, I recorded the audio of interviews, meetings and events as much as possible — as well as some casual (but valuable) conversations — and took photographs for the sake of compiling visual records that could be cross-referenced

with the audio and textual material. A number of those photos are reproduced within this dissertation, for illustrative purposes. Since a number of key informants were active Facebook users, their posts — updates and photos — were monitored for important developments in their activities.[45] A great deal of recorded and collected material was transcribed into Japanese text; a subset of that was subsequently translated into English. Likewise, key portions of publications and printed documents were also translated. As mentioned briefly in this dissertation's Acknowledgments section, my wife, Michiyo, who is a native of Kobe, Japan, supplemented my own work with occasional interpretation at meetings and interviews and with help translating documents and transcripts. Finally, all of the information and notes generated from these research activities were collated and analyzed, both concurrently with their capture as well as *post facto*.

"Collation and analysis" means that the data was tagged with notes and organized into an evolving filing system, the structure of which reflected research themes and empirical categories based on a continuously developing understanding of the data and its relevance to the sensitizing concepts. This process was often undertaken in conjunction with the selection of material to be transcribed and the further selection of material to be translated (signal selection and amplification, to continue the earlier metaphor). In addition, some data collection itself performed crucial interpretive and analytical work. In particular, in interviews and other interactions with actors, many of whom may also be said to be colleagues in the broad field of disaster studies, discussions often became sessions of mutual dialogical analysis and interpretation. Particularly as my fundamental orientation toward the project was not to work toward a narrowly conceived conclusion nor to impose a heavy-handed

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45. I have not used any direct quotations from these posts, but rather used them to inform lines of questioning during interviews and personal communication.

theoretical structure on the data, but, rather, to "follow the actors"[46] and, as much as possible, to allow meanings to seem to "emerge" from the data, guided by sensitizing concepts,[47] these discussions were especially productive. Since none of my interlocutors was familiar with STS or PES literature, it was solely my task to situate these meanings with respect to the literature and my developing understanding of the research. As the research progressed into the "sense-making" phase, notes were expanded into brief passages of descriptive and analytical text, and eventually organized and further expanded into narrative proto-chapters for this dissertation.

Although the Institutional Review Board of Cornell University chose to exempt my project from the strict oversight of IRB review, some of the information I collected in the course of my fieldwork was of a sufficiently sensitive nature that I have elected to anonymize (or rather, pseudonymize) certain names of people and places. A few names are too well-known or too easily identifiable to effectively obfuscate, while most are not particularly vulnerable to harm.

I encountered several interrelated challenges in the field, which I was only partially able to overcome, and which therefore have affected the content of this dissertation. First, despite my aim to produce an account symmetrical in its treatment of each of the main groups of actors, in practice this turned out to be difficult to achieve. While my institutional affiliations afforded me a number of advantages, being based primarily in Kobe (where those institutions were located) meant that I had more frequent, easier access to the PRP experts in Kobe than I did to the residents and communities of Tōhoku. To some degree I was able to compensate for this by simply

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46. Latour (2007).

47. "Emergence," of course, is a phenomenological description of a process that involves both intuitive perception and systematic analysis by the researcher. Ultimately, all interpretation is theory-laden and all analysis is guided, not only by conscious awareness of specific questions and sensitizing concepts, but also by disciplinarily structured ways of thinking.

prioritizing social and formal interactions with residents of Kesennuma and Minami-Sanriku when I visited those sites; however, a more sustained presence in Tōhoku may have allowed for even deeper ethnographic engagement.

At the same time, my access to the Kobe-based experts was also limited in certain respects. In spite of my affiliations, I did not necessarily have daily contact with them, and I was never able to find myself fully included in their internal communiqués. Although they responded generously to any individual request for specific information, they did not generally include me in their planning or in the circulation of information unless I asked. Not only was I a new acquaintance, but I was a foreigner of a younger generation, untrained in architecture or urban planning, with somewhat limited Japanese language abilities. In short, I was an outsider — welcomed and treated generously, to be sure, but never quite fully included, and thus not privy to as much information as I would have liked.[48]

Other unintentional asymmetries of access and analysis have further influenced the account within the following pages. For example, I had limited access to meetings between PRP experts and government officials; thus, I have been unable to portray those interactions and relationships, especially vis-à-vis relationships with local residents, in as much detail as they deserve. For a time, my focus in the field was largely upon the "point of contact" between Tōhoku's residents and Kobe's PRP experts, at *machi-zukuri* meetings and elsewhere, and it was relatively late in my fieldwork that I came to fully appreciate the fact that such PRP activities are substantially circumscribed by the planning efforts of government agencies and their

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48. As one who owes many of his achievements to sheer linguistic competence in a single language, it is difficult to know whether such challenges could have been overcome with native speaker-like abilities. As mentioned in the Foreword, Michiyo, my Japanese spouse-cum-research assistant, was able to help me overcome many language barriers, but there is no question that, even with the best training, one will never be as comfortable conducting research in a second language as in one's native tongue.

contractors, huge design-and-engineering corporations. The results of recovery planning conducted by local communities, while given official recognition and limited funding by government agencies (explained in further detail below, especially in Chapter 3's "*Dramatis institutionae*" section), are subject to final approval by government planners and must ultimately fit within the municipal and regional-scale plans produced by contracted firms with relatively scant public input. This side of the recovery planning process is clearly important to the story; however, because of my primary perspective from within the local planning process, it may sometimes appear in my account as a somewhat opaque, exogenous force impinging upon the local scale from without.

1.4: A few words on words

A comprehensive survey of literature on "participation" and its conceptual kin "engagement," "dialogue," and "deliberation," even just in the last two decades, would span multiple fields and yield innumerable empirical examples and theoretical variations on the concepts. A similar claim could be made for definitions and theories of "the public" or "publics," "community," and — perhaps especially — "experts" and "expertise." In many cases, what these terms signify may remain unclear or implicit; categories may overlap and slide into one another. They tend to drift lazily and congregate into conceptual clusters, collocations and binary oppositions, wherein meanings between strongly associated terms may bleed across porous categorical boundaries. For example, "the public" may be associated with "citizens," "residents," and "laypeople." *All* of these categories may then be situated in opposition to "technical experts," even though only the last term, "laypeople," properly pertains to the issue of expertise.[49] Equally problematic, individual members of each category may be assumed to be, not merely similar enough in a few specific ways to cohere under a common rubric, but almost entirely homogeneous. In this dissertation, I have tried to recognize the heterogeneity within broad categories such as "the public," and I have tried to remain as consistent as possible in my usage. Rather than invoking esoteric or theoretically specific definitions of these categories, my usage is, on the whole, intentionally consistent with common-sense, vernacular understandings of these words.

I view "the public" as the collective population of a society (or a large subsection thereof) who may partake in "public" spaces and "the commons." This includes both "experts" as well as non-experts or laypeople, though for any given field

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49. For example, Felt & Fochler (2010) describe (and critique) "public engagement" exercises in which relatively knowledgable would-be participants were barred from participating, as they did not sufficiently represent "the public" *qua* "non-experts."

of expertise a relatively small percentage of people would be considered "experts." I generally prefer to use the term "non-expert" over "layperson" because the latter, to my ear, seems to imply a general lack of knowledge and skill, almost to the point of character judgment, whereas the former is a more clinical term denoting a person who lacks a specific "expertise" in a particular field. The point is to recognize that each individual may be an "expert" in one or more fields, and that context is critical: in an urban planning context, fisherman may be non-experts, but in a fishing boat pitching on the ocean waves, the planners become the "non-experts."

The term "publics" explicitly recognizes social diversity within "the public," and emphasizes the subjectivity of these social groups — i.e., their roles as audiences, clients, or markets. "Citizens" are those members of a society or a community whose "citizenship" bestows certain civil rights while imposing a specific set of responsibilities on the members. "Residents" are people who reside in a specific geographical area. "Locals" are those who are intimately familiar with a specific location, through residence or through work or for other reasons.

"Community" is a complex term. Scholars have theorized different kinds of communities, such as "imaginary communities" (based on shared ideology, social identity and "imaginaries"),[50] "enunciatory communities" (based on shared interpretations of common experiences),[51] and the kinds of communities that arise around shared "civic epistemologies" and "sociotechnical imaginaries."[52] Theories of concepts like "civic virtue" or "social capital" often imply or intersect with the notion of "a sense of community:" the social bonds — affective, material, institutional — that tie a "community" together. Vernacularly, "community" carries connotations both of a

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50. Anderson (1991, 1996).
51. Fortun (2001).
52. Jasanoff (2005), Jasanoff & Kim (2009).

geographically delimited neighborhood and of a socially cohesive group of people who share some common trait, interest or affiliation. Methodologically, leaving that ambiguity unresolved can be productive. That is, rather than declaring, prior to analysis, a definitive concept of "community," it may be more fruitful to "follow the actors" who invoke the term, and to observe their own usage and interpretation.

An important concept, oft-invoked in PES comparisons of lay people and experts — and indeed in post-Strong Programme STS generally — is "reflexivity." An actor's reflexivity is generally characterized as lying on a continuum between "unreflexive" and radically "reflexive."[53] In usage, it is not always entirely clear what this means. *Contra* this tradition, Lynch argues cogently against the notion that some actors practice reflexivity while others do not.[54] Drawing upon Garfinkel, he argues that all human communication is inherently reflexive in a mundane yet fundamentally important sense; thus, all actors exhibit reflexivity of one form or another. He provides an extensive glossary of multiple, context-dependent meanings of the concept,[55] and argues that a more useful task for the scholar (as opposed to noting who is "reflexive" and who isn't) is to analyze actors' specific forms and uses of reflexivity within specific social contexts. As I discuss in more detail in the final two chapters of this dissertation, Lynch's argument poses significant repercussions for conceptualizations of expertise. Where I use the term without qualification, I intend it to convey something like "critical self-awareness," a crucial component of which is the constant assessment of whether or not the actor in question has taken into consideration alternative perspectives, particularly of those who are likely to be affected by the actor's decisions and actions.

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53. Cf. Woolgar (1988), Ashmore (1989).
54. Lynch (2000).
55. As does Ashmore (1989).

"Expertise" is another ambiguous — and often contentious — term. On the one hand, it is perhaps most often understood as specialized "know-how" that one possesses or enacts — a set of skills, techniques, knowledge, and ways of knowing that characterize a particular (technical or disciplinary) specialty. On the other hand, this word is also not infrequently used to describe *the status ascribed to* an "expert" — it is the status of "having expertise" (in the first sense) or of "being (considered) an expert."[56] STS scholars have argued cogently that both knowledge and the epistemic authority associated with the status of "expertise" are socially constructed phenomena.[57] In this view, such a status is the result of social judgments about whether or not would-be experts "look, walk and talk like experts:" do they "have" specialized knowledge? Can they make credible knowledge-claims? Can they credibly make use of relevant skills? Can they make credible judgments pursuant to their specialty? In other words, one does not become an "expert" solely through the acquisition and possession of specialized know-how, but also through authorization or accreditation by *key constituencies*, including previously established experts as well as some non-expert members of the public. In short, one *earns* the "right" to be *called* an "expert." This is accomplished, fundamentally, by convincing these constituencies of one's *credibility*.

The construction of expertise is a core concern of STS as a field, and while there are broad agreements about the outlines, fierce debates remain about the specific nature and uses of "expertise." For example, the approaches of Shapin or Latour, each constructivist in its own way, contrast with the so-called "Third Wave" approach of Collins & Evans. Shapin's work portrays the construction of expertise as comprising a

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56. Note that both usages are widely employed in vernacular *and* scholarly discourse (often ambiguously, even in the latter). I do not claim that any definition is the "correct meaning" to be applied universally across contexts. Rather, my purpose here is to identify general usages and to specify my own.

57. E.g., Shapin & Schaffer (1985), Shapin (1995a, 1995b).

diverse set of practices and "technologies" with the fundamental objective of establishing a would-be expert's credibility as a knowledge claim-maker.[58] In "Cordelia's Love: Credibility and the Social Studies of Science," Shapin stops just short of arguing that the "social studies of science" ought to be known as "socially constructed credibility studies".[59] Latour, Callon, and their actor-network theory (ANT) colleagues similarly describe tactics and strategies for amassing credibility as central to the construction of expertise, although these tactics (which are often martial; e.g., mustering allies), their metaphorical analogies (invoking military and political conflict), and the ANT framework certainly differ from the accounts of Shapin and others.[60] In a more recent approach that departs from these constructivist treatments, Collins & Evans portray "expertise" in instrumental terms, as knowledge that can be acquired, possessed, and *put to use* to solve problems or make decisions.[61] Noting that a common normative position of STS scholars is to enrich technoscientific debates and improve policy decisions through broader participation and engagement, they argue that the key questions for such scholars are to identify which kinds of knowledge are relevant to which problems and to further identify *who* "has" the requisite "expertise" to apply most effectively in a given situation. They argue that STS scholars are uniquely positioned to make such judgments,[62] and they propose a typology of "expertise" in order to systematize such a process.

I continue discussions of "expertise," including the possible relevance of such frameworks, throughout this dissertation, especially in Chapters 5 and 6. As mentioned

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58. E.g., Shapin & Schaffer (1985), Shapin (1995b).
59. Shapin (1995a).
60. E.g., Latour & Woolgar (1986), Callon (1986), Latour (1987, 1993).
61. Collins & Evans (2002, 2003, 2007). Cf. also Collins, Evans & Gorman (2010).
62. This is interestingly parallel to the position of some who see a special role for STS scholars in facilitating and mediating processes of public engagement with technoscience, especially "upstream." Q.v., Chapter 5.

above, one of my objectives is to explore how a particular group of scholars and professionals constructed a new field of expertise (PRP) while establishing themselves as experts in this field. Both conceptions of expertise are important in this regard: what kinds of know-how did they learn? How did they achieve recognition as experts from their key constituencies? (And who were these constituencies?) And how are they sustaining and reproducing their expertise into the future?

No doubt part of the answer to these questions involves "engagement" or "participation." *To the extent that they do overlap*, and to avoid repetitive linguistic monotony, I have used these terms somewhat interchangeably in this dissertation. Both can indicate the idea of mutual, active involvement. Strictly speaking, however, they are not identical, and I have made every attempt to use the more precisely correct term wherever the difference might matter. "Engagement," in particular, is a highly complex term that can convey interest, consideration, or interaction. "Public engagement" may indicate any of these; moreover, it is ambiguous as to whether "the public" is the subject or the object of the "engagement" in question. Thus, calls for "public engagement with science" may be interpreted as exhorting scientific experts to "engage" the public more (that is, to interact with them, attract their attention and elicit their interest), or as exhorting the public to "engage" with "science" more (that is, to pay attention to scientific knowledge or become involved in scientific endeavors).

1.5: Post-disaster "opportunity" and public engagement (or: Why this is not a study of upstream engagement)

In the aftermath of a major disaster, the rhetoric of crisis and opportunity pervades public dialogue. Actors as well as scholars proclaim opportunities to enhance a community's resilience and sustainability, to reduce and more justly distribute environmental risk, and even to remake its very moral constitution.[63] "Build back better" is a rallying cry among inter-governmental organizations (IGO's) such as the UNISDR,[64] the World Bank, and the International Recovery Platform (IRP). After over 140,000 Tokyo and Yokohama residents perished in the 1923 Great Kanto Earthquake, Japan was swept by forces seeking to build a "stronger" and "purer" state by exploiting the sense of emergency, laying the ideological groundwork for militarism and imperial aggression in subsequent decades.[65] After the infamous industrial disaster entailing widespread mercury contamination in Minamata, Japan, that municipality endeavored to reinvent itself as an "Eco Town," for which it has since won several awards, including "Eco Capital of Japan" in 2010.[66] The Unified New Orleans Plan (UNOP), a community-based PRP process by which New Orleans residents, in conjunction with teams of planning consultants, produced a recovery plan after Hurricane Katrina, was cited by participants as the beginning of a newly democratic way of "doing business" in a city with a long history of exploitative planning and corrupt policies decided in backroom deals by a few elites.[67] After both Kobe's

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63. Olshansky (2002), Olshansky et al (2005), Clancey (2006a, 2006b), Hilgartner (2007), Edgington (2010), Orihara & Clancey (2012).
64. United Nations International Strategy for Disaster Reduction.
65. Orihara & Clancey (2012).
66. http://eco-capital.net/modules/project/ecocap/report10/ecocapital.html; http://www.japanfs.org/en/mailmagazine/newsletter/pages/031174.html. Communities struck by disaster, whether "natural" or "industrial," often respond by turning toward "nature" and environmental sustainability.
67. Newport interview (UNOP archive, 2006), Lukensmeyer (2007), Johnson & Olshansky (2010). One outcome of the UNOP process was the proliferation of dozens of

earthquake in 1995 and the disasters of March 11, 2011, commentators remarked on the opportunity for stimulating Japan's moribund economy through reconstruction.[68] Thus, even as some participants may use them to litigate grievances of the past, recovery planning endeavors fundamentally become contests over differently imagined sociotechnical futures.

Practicing city planners sometimes use terms such as "tabula rasa" or "clean slate" to describe the post-disaster townscape,[69] while scholars from the same field readily acknowledge that such characterizations neglect to acknowledge "sociotechnical obduracy"[70] — surviving residents and structures, rubble and detritus, social institutions and networks, and the recovery plan that already lives in the minds of survivors: the city as it existed before.[71] A tension in large-scale recovery planning exercises is commonly expressed between, on the one hand, a desire to *restore* the community to its prior state as quickly as possible, and, on the other hand, a desire to *rejuvenate* the community by making it safer, more economically vibrant, or more sustainable.[72]

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neighborhood associations across New Orleans, involved in local planning and other community development activities. It also gave rise to an Internet startup, Neighborland.com, a kind of hybrid of Twitter and crowdsourcing applied to grass-roots planning. (Users post desired changes in their local townscapes by completing the sentence "I want _____ in my neighborhood.") On the other hand, shortly after the end of UNOP, a mid-city neighborhood with numerous historic buildings was bulldozed to make way for a massive hospital project which had been pushed through with little public input, against intense popular opposition — an apparent return to planning and development practices of the past.

68. Kristof (1995a), Gardels (2011).
69. Vale & Campanella, (2005).
70. Hommels (2005a, 2005b).
71. Haas et al, (1977), Olshansky (2002).
72. Olshansky (2002), Vale & Campanella (2005), Johnson & Olshansky (2010). Etymologically "rejuvenate" derives from Latin, meaning "to make young again," and in the case of demographically aging Tōhoku, desires to "rejuvenate" local communities are often couched in literal terms of attracting and retaining younger residents.

Because of the pervasive rhetoric of opportunity, the devastated landscape, and the unprecedented scale of a planning enterprise involving officials, experts and residents across an entire city or a region, I initially framed PRP, not merely as public engagement, but as an example of *upstream* engagement. Scholars and proponents of "upstream engagement" have typically envisaged it as a kind of public intervention into the study and development of risky science and powerful emerging technologies before society is exposed to those risks. Citizens would engage in deliberation with experts about the risks and benefits of such technologies (including the potential for their inequitable distribution), influence the path of their development, and help identify alternative technologies that might be safer or more equitable in their impacts. Thus, there seemed to be a natural consonance between the rhetoric of post-disaster opportunity and the STS/PES notion of "upstream engagement." In order to explain why I have emended the "upstream" frame vis-à-vis Tōhoku's recovery, I present the following, brief intellectual history of "upstream engagement."

STS scholars have advocated "sustained interactions between decision-makers, experts, and citizens, starting at the upstream end" of sociotechnical endeavors.[73] They have argued that only at the "upstream end" can citizens exercise their right to participate in crucial meaning-making or to influence the framing of questions and the articulation of "what are the issues, and what kind of knowledge is in principle salient."[74] Sites of inquiry for this kind of "public STS" have most frequently featured controversies over public health and disease or contamination of the environment. The science and technology at the center of these disputes has ranged from industrial practices and environmental pollution (e.g., industrial accidents, waste disposal,

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73. Jasanoff (2003).
74. Wynne (2003).

pesticides, industrial chemicals)[75] to emerging technologies (GMO's, nanotechnologies, medical practices and innovations)[76] to disease outbreaks (epidemics, food-borne illnesses).[77] Arguably, work on how users employ and reciprocally shape technologies may also be considered studies of a kind of public engagement with technoscience.[78] This concept of "upstream engagement" supports the argument that the ethically responsible development and use of risky emerging technologies in democratic societies must be subject to reflexive processes of deliberation by multiple publics and stakeholders, regardless of participants' putative expertise or lack thereof.

In the 1980s, STS scholars such as Brian Wynne began calling for "science" (i.e., scientists, technical experts and techno-scientific institutions) to take a cue from lay members of the public and to practice more humility and reflexivity when interacting with the public, particularly in the field, away from the laboratory.[79] The rationale, in part, was to improve trust and the working relationship between "scientists and bureaucrats," on the one hand, and non-expert members of the public on the other. It was also to improve the effectiveness of technical advice by making it more appropriate to local cultural and environmental conditions, and by cultivating self-correcting practices of reflexivity.[80] This began a stream of PES scholarship normatively oriented toward the goal of improving the "quality" of scientific knowledge and technological implementation, whether it be through changing the

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75. E.g., Wynne (1982, 1989, 1992, 1996), Brown (1992), Fischer (2000), Allen (2003).
76. E.g., Irwin (1991), Irwin (1995), Sclove (1995).
77. E.g., Irwin (1995), Jasanoff (1997).
78. E.g., Akrich (1992), Kline & Pinch (1994), Pinch (2004), Oudshoorn & Pinch (2005).
79. Wynne (1982, 1989, 1991, 1992, 1993, 2002, 2006, 2008). Wynne (1993), p. 337 (cf. Wynne, 2008, p. 24) half-jokingly proposes a "simple law of reflexivity — reflexivity is inversely proportional to power." Wynne's work generally associates "science" with formal authority, and Wynne (1991) argues explicitly and forcefully that his critique of "science" has "*universal* significance and validity" (italics in original) — that is, his critique applies not just to specific, "local" cases of inquiry, but indeed generally to "science" as an enterprise.
80. But see the discussion of "reflexivity," above.

ways that scientists and experts engage with, and learn from, non-experts and particular field sites, or through expanding and enhancing the ways that non-expert publics engage with "science."

Joining these two strategies together, for example, Funtowicz and Ravetz have argued for the need for "extended peer review," a term that denotes expanded public participation in assessments of scientific advice and truth-claims.[81] Yearley broadened this concept to further include the notion that these "extended peers" also "extended the range of issues on which they commented" beyond simply the pre-framed technical problems, questions of facticity, or knowledge propositions placed before them, in order to situate the technical issues within meaningful social contexts.[82] Contrary to traditionally idealized notions of "good science" as "objectively" devoid of social context or politics, such scholars have argued that embracing this context makes for knowledge that is "not just more [socially] equitable than that produced by scientific expertise alone but more specific and accurate as well!"[83]

In the tradition of work on public engagement with science (as opposed to scientific engagement with the public), Brown describes "popular epidemiology" as an *ad hoc* yet systematic program of action by which small communities of non-experts are able to construct epidemiological knowledge as well as credibility with established scientists and authorities, which they leverage into policies and action.[84] In a similar vein, Lee & Roth describe the capacity of groups of lay people to learn ecological and other scientific knowledge as a collective enterprise in which knowledge production is shared and distributed through the group.[85] Murphy describes how sick building

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81. Funtowicz & Ravetz (1990).
82. Yearley (2006), 705.
83. Forrester et al (2002). Cf. Harding (1991).
84. Brown (1992).
85. Lee & Roth (2003).

syndrome and multiple chemical sensitivity came to be “discovered” and “constructed” as disorders, and recognized by the medical establishment, through the collective efforts of a movement of largely female office workers who, like Brown's actors, had noticed unusual relationships between their ailing bodily symptoms and their office environments.[86]

Although scholars like Wynne, Brown and Funtowicz & Ravetz had already begun describing what would become known as "public engagement with science," that phrase would not be used until 1995, with Epstein's landmark study of how AIDS activists strongly influenced the production of knowledge about the disease — particularly its etiology — as well as the way in which patients were treated. In their push to favor rapid response over “scientific certainty,” these activists ultimately altered the institutional regulations and scientific rubrics and methodologies of federal agencies such as the Food and Drug Administration. Formerly lay activists immersed themselves in the language and idioms of relevant sciences in order to assert their own expertise and to challenge establishment experts and policy makers “on their own turf.”[87] In his study, Epstein noted that "the distinctive social epidemiology of AIDS has shaped the character of the public engagement with science."[88]

Also in 1995, Rip et al published a volume on Constructive Technology Assessment (CTA), a framework for facilitating public deliberation of technology policy in dialogue with experts and policymakers that shares much with the vision of "upstream engagement" and its later cousin, "midstream modulation" (q.v. below).[89] That same year saw the publication of Irwin's *Citizen Science*, which, without using the

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86. Murphy (2006).
87. Epstein (1995, 1996).
88. Epstein (1995), p. 414.
89. Note that by 1995, CTA was already a relatively mature framework, more than a decade old.

phrase, was a manifesto for the widespread and strategic implementation of mutual engagement between "science" and its lay publics. Irwin and Wynne followed this up in 1996 with a further articulation of the public engagement thesis in their edited volume, *Misunderstanding Science?* In the same year, Wynne produced a widely cited book chapter, "Will the sheep safely graze?", in which he articulated a kind of social theory of public engagement vis-à-vis risk, science and modernity, noting differences between his theory and those of Beck, Giddens and other social theorists on these topics.[90] Studies and discussions of "public engagement with science" have proliferated since then.

The specifically "upstream" variant of public engagement first saw the light of publication in Jasanoff's 2003 manifesto, "Technologies of Humility:"

> Sustained interactions between decision-makers, experts, and citizens, starting at the upstream end of research and development, could yield significant dividends in exposing the distributive implications of innovation.[91]

Visible in this sentence are familiar concerns with lay-expert engagement ("interactions"), democratic decision making, distributive justice, and emerging technologies ("innovation"). To these, Jasanoff adds the specific call for these interactions to take place "at the upstream end of research and development."

Although Jasanoff's essay has become one of *Minerva's* most read and cited papers,[92] it was not until after the UK think-tank Demos published its own manifesto *See-through Science*,[93] promulgating similar ideas but written in simpler, more

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90. Wynne (1996b).
91. Jasanoff (2003), p. 242.
92. Subsequent versions have also been published in the journal *Nature* (2007) and as chapters in at least two edited volumes (Mitcham, 2005; Nerlich et al, 2009).
93. Wilsdon & Willis (2004).

straightforward language for a broader audience of scientists, policy makers and the wider public, that the language and metaphor of "upstream engagement with science (and technology)" became widely adopted and discussed. In part as a response to the extensive and varied reaction, including criticism, to *See-through Science*, Demos quickly published several follow-up pieces, including *The Public Value of Science*.[94] Its authors accuse "critics of upstream engagement" of "resort[ing] to arguments based on a linear model of innovation," a model which they proceed to tear apart, noting that "of course, innovation doesn't happen in a line."[95] A few pages later, they admit that "we also need to acknowledge the linearity of our metaphorical stream."[96] In defense, they note that they conceive of engagement as a cycle — a linear stream circling back upon itself, like the mythical symbol of the *Ouroboros* (a serpent eating its own tail). They reproduce the following diagram of this cycle from Jackson et al (2005):

94. Wilsdon, Wynne & Stilgoe (2005).
95. ibid., p. 35-36.
96. ibid., p. 38

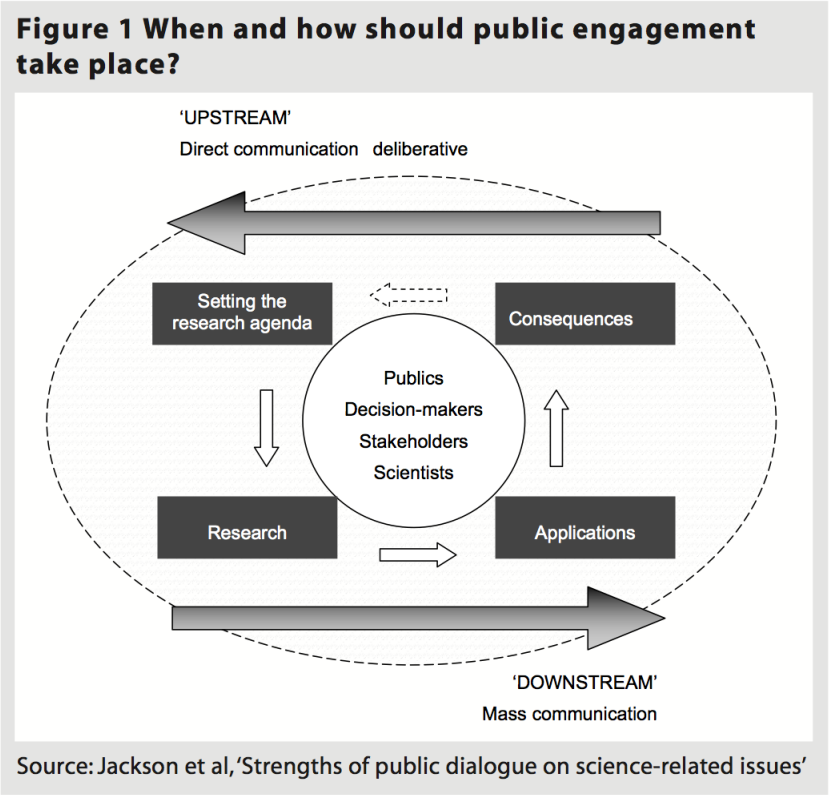

Fig. 1-2: A letter runner: the *Ouroboros* of cyclical "upstream engagement." Source: Wilsdon, Wynne & Stilgoe (2005).

The stream is now recursive: its discharge has become its own headwaters.

Recently, some STS and PES scholars have begun to complicate the notion of "upstream engagement" somewhat, by advocating for "midstream modulation,"[97] in which scientists and technical experts incorporate reflexive deliberation into their research and development, such as with the aid of "engagement agents" — trained STS and PES scholar-practitioners.[98] The point is to emphasize the malleability of a given program of research or development, to ensure its receptivity to public influence and intervention even well past its earliest stages. It has been described as a way of "bridging internal and external governance" of science, "through which scientists and

97. Fisher et al (2006), Schuurbiers (2011), Wynne (2011).
98. te Kulve & Rip (2011), Conley (2011).

engineers, ideally in concert with others, bring societal considerations to bear on their work."[99] Such applications of "midstream modulation" seem to reinforce both the implication that technological development is linear, as well as the implication that such development proceeds "internal" to science and engineering, divorced from "external" society and "downstream" users.

Despite some shortcomings with the "upstream-midstream-downstream" metaphor of public engagement, I had considered PRP in Tōhoku as a site for the study of "upstream engagement," until my fieldwork convinced me otherwise. As I describe in greater detail in Chapter 3, I found the results of decades of gradual social disintegration in the fishing villages of Karakuwa and the Sanriku coast — processes that have hastened in the aftermath of the tsunami, posing the possibility that, especially given the accelerating decline and aging of the population, newly rebuilt settlements surrounded by massive tsunami defenses may end up sitting largely empty and unused within 20-30 years. Given this, it would seem inaccurate, perhaps even ethically inappropriate, to describe current processes of PRP as cases of *upstream* engagement in sociotechnical change, particularly when such a framing evokes the common post-disaster rhetoric of opportunity. While the recovery may well hold a legitimate promise of opportunity and a hope for renewal, the "upstream" metaphor seems to elide the important narrative of these people's history and their current conditions and daunting challenges.

Furthermore, due consideration of context does not end here; the standpoint of the one who invokes the metaphor also matters. If a resident of a Karakuwa fishing village speaks of "upstream" opportunities, it carries a different weight and meaning than if a government official speaks of the same — or an academic analyst.[100] In some

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99. Fisher et al (2006), p. 486-487.

100. Some local residents do talk of the recovery as an opportunity to improve their

early meetings between local residents and recovery experts that took place in the summer of 2011, the experts began by talking excitedly about a range of opportunities, but the residents were simply emotionally incapable of seeing the long road of recovery as a set of opportunities to be excited about.[101] They were too immersed in the gloom of the metaphorical tunnel to perceive the light at the end. At such a moment, government officials and some PRP experts — with the best of intentions — were employing the rhetoric of opportunity to support initial recovery plans. The recovery, they said, could become a vehicle for the modernization and revitalization of the area's long-moribund economy. To some residents, such rhetoric seemed insensitive to their suffering, possibly even self-serving — oriented toward political or eventual monetary gain. Invoking the upstream metaphor resembles this rhetoric of opportunity, which may appear ethically questionable, depending upon context and the standpoint of the speaker.

Thus, despite its heuristic power, ultimately I have chosen to set aside the "upstream" metaphor, while retaining the broader and more flexible frame of public engagement with technoscience.

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community in various ways, and some are worried that this "good chance" is being wasted due to poor policy decision-making and other problems.

101. Kumagai interview (March, 2013).

1.6: The structure of this dissertation

Chapter 1 introduces the research sites and opportunities, including key questions, concepts and actors, and describes the methods and challenges of the research undertaken. While arguing that PRP is a site of public engagement in sociotechnical change, it questions the appropriateness of employing the metaphor of "upstream" engagement to frame recovery in Tōhoku.

Chapter 2 describes the history of participatory recovery planning (PRP) in Japan, focusing upon its birth and maturation in Kobe after the 1995 Great Hanshin-Awaji Earthquake. The protagonists of this story are the community-based planning associations called *machi-zukuri kyōgikai* and the uniquely cohesive group of "built environment" scholars and practitioners who became the core group of PRP experts. This chapter describes the specific activities of several of these experts and the *machi-zukuri* groups with which they worked, demonstrating examples of PRP learning and practice. It further illustrates the deliberate efforts of these experts to share the fruits of collective learning and to institutionalize their expertise. Finally, the chapter discusses their efforts to consolidate and apply their expertise in Tōhoku, and to insure their legacy by using the situation in Tōhoku to train their successors and demonstrate the value of their expertise.

Chapter 3 provides the background necessary to help the reader understand the context of ongoing PRP activities in Tōhoku, including a brief history of the region, a description of the disasters known as "3.11," and an overview of the array of social institutions involved in the recovery. The rest of the chapter charts the socio-historical context of post-disaster recovery in fishing villages of the Sanriku coast, particularly Karakuwa Peninsula within the municipality of Kesennuma. In light of this context, the prospect that the process of "recovery" may deliver a "final blow" to

the old social order, just as devastating as the tsunami itself, seems as likely as any prospects for renewal.

Chapter 4 interrogates the "deficit model" of context-blind *experts* that has replaced the old "deficit model" of an irrational and ignorant *public* yet nevertheless retains the assumption of a persistent, nigh-incommensurable "lay/expert divide." Through the concrete description of PRP activities in several districts of Kesennuma, Chapter 4 casts doubt upon both models' portrayals of this divide, instead showing non-local experts and non-expert locals mutually and collectively working to learn from each other, accomplish common goals, and close the gaps between them. Furthermore, this chapter follows PRP experts as they negotiate the apparent tension between "technical guidance" (dispensing pre-packaged specialized knowledge) and the necessity to take into account local conditions and needs as they facilitate PRP processes. It suggests that, for these experts, there is no meaningful distinction between their nominal, "technical" expertise and their expertise as facilitators of participatory processes *per se*.

In this dissertation, Chapter 4 and **Chapter 5** provide the richest empirical descriptions of PRP activities in Tōhoku, specifically in the towns of Kesennuma and Minami-Sanriku. Theoretically, however, whereas Chapter 4 critiques established notions of deficit models and the "lay/expert divide," **Chapter 5** focuses on adopting, expanding, and building upon promising recent ideas in STS and PES, specifically the notion of *engagement agents*. It argues that this concept, conscientiously adapted and extended, may be a fruitful and appropriate description for a special class of context-aware experts sensitive to local knowledge, epitomized by the PRP experts from Kobe who feature so prominently in the narrative of this dissertation. It examines the questions of who can fulfill the role of an engagement agent and what kinds of practices such agents employ. Drawing upon empirical examples, it argues that

engagement agents need not start out as technical experts or STS scholars, and that a set of practices grouped under the rubric of *trust-work* constitute a core praxis of their expertise. Effective engagement agents employ multiple strategies to assemble technical, local and contextual knowledge, to "orchestrate" engagement, and to establish and fortify their own status as "experts."

Finally, **Chapter 6**, the conclusion, recaps the narratives and arguments of the preceding chapters, attempts to synthesize their findings, and instigates a discussion of their significance for the actors and communities involved, for Japan as a whole, and for STS and PES as well as for studies of planning, disasters, governance, and other fields. It revisits the practices of PRP experts described in this dissertation in order to make sense of them as characteristic, not only of a particular group of experts from Kobe, but of engagement agents more broadly.

2. "A NEW BREED OF SPECIALISTS" : THE KOBE EARTHQUAKE AND THE RISE OF PRP IN JAPAN

... who, then, will inherit the legacy of Hanshin-Awaji?

— Seiji Komori[1]

2.1: Calamity's heritage

With its long history of disasters and war, Japan has extensive experience with post-disaster recovery. In the 20th century Japan twice recovered from cataclysms of almost unimaginable scale: the Great Kanto Earthquake of 1923, which destroyed much of Tokyo and Yokohama and left over 140,000 dead or missing,[2] and World War II, by the end of which American bombs had left only five or six towns (of 30,000 people or greater) with more than 50% of their built environment intact.[3] Each of these catastrophes spurred a frenzy of recovery-focused urban planning activity and legislation as well as massive reconstruction efforts. It was not until the 1960s that participatory community-based planning began to take hold as a reaction and a complement to conventional "top-down" city planning by technocratic administrators and official planners. The Great Hanshin-Awaji earthquake that devastated Kobe in 1995 was Japan's first large-scale disaster since the Fukui Earthquake in 1948,[4] and while much of the city's recovery planning was still characterized by technocratic "top-down" approaches, it also incorporated participatory community-based planning

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1. Komori interview (May 2012).
2. This number is widely reported, although the original source is unclear. The USGS lists the total number of souls lost as 142,800 (http://earthquake.usgs.gov/earthquakes/world/events/1923_09_01.php).
3. Selden (2007), Wilson (2013).
4. There were other disasters in this period, of course, such as the Okushiri tsunami described in the Introduction. Here, I am counting any event that kills thousands of people and destroys tens of thousands of structures as a "large-scale disaster."

processes on an unprecedented scale. Indeed, it was in Kobe that *participatory* recovery planning (PRP) through local organizations such as *machi-zukuri* councils, in (often contentious) partnership with government planners and facilitated by expert consultants, became established as a major — and, I will argue, essential — approach to post-disaster recovery planning in Japan.[5] This chapter draws upon existing scholarship as well as interviews and documentation to describe the range of PRP endeavors in Kobe and the work performed by those technical experts, primarily in the "built environment" design and planning fields, who further developed expertise in the facilitation of PRP processes involving non-expert local residents.

These experts thereby established their approach as a viable and important alternative to traditional top-down recovery planning methods. The bulk of the chapter focuses upon Kobe. It concludes with a discussion of these experts' subsequent activities (post-Kobe recovery), including their current involvement in Tōhoku and their explicit acknowledgment that this involvement is critical to cementing their legacy.

5. As several veteran expert consultants have told me, this "Triangle of administration-consultants-residents is a salient feature of the Kobe Style" or the "Kobe Way" of PRP. (Tsuji interview, April 2012)

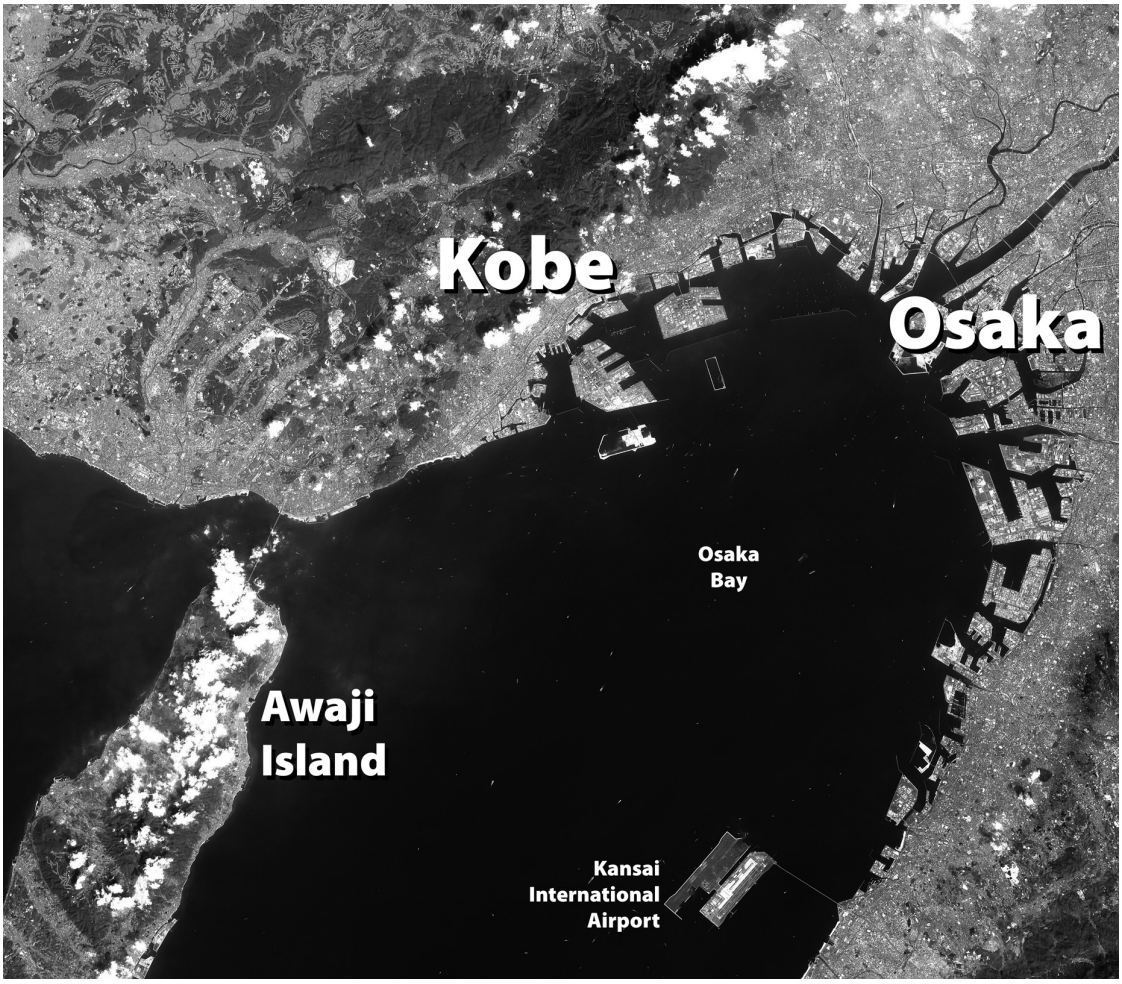

Fig. 2-1: Satellite photo of Osaka Bay, showing Kobe, Osaka, and Awaji Island. The earthquake's epicenter was at the northern tip of Awaji Island. Tremors traveled along faults to the southwest, through rural Awaji, and to the northeast, through the heart of Kobe's urban areas. (Original color photo, sans text, from Wikicommons. Modified by author, September 2013.)

2.2: Mano and the rise of community-based planning within "Kobe Inc."

Japan's sixth-largest city by population at the time of the earthquake (and still today, with about 1.5 million residents), Kobe's distinctive social and institutional landscape made it something of an enigma with regard to urban planning and development. On the one hand, it had already become a hotbed of participatory local planning through the mechanism of neighborhood-based *machi-zukuri* organizations, one of which had been periodically covered by national news media and thoroughly studied by Japanese planning scholars. In 1981, it had become the first city in Japan to pass a *machi-zukuri* ordinance, formally recognizing a role for local community-based planning associations and opening an official channel for collaboration between *machi-zukuri* groups and the city planning department. On the other hand, the city had earned the somewhat derisive nickname of "Kobe Inc." (株式会社神戸, *kabushiki kaisha Kōbe*) from its residents, due to the municipal administration's single-mindedly aggressive pursuit of business development, its heavy-handed planning policies, and its expensive, high-profile construction projects, such as the expansion of industrial and residential real estate by leveling nearby mountains and using the removed earth to construct two large artificial islands.[6] In addition, Kobe's community of built environment scholars and professionals was uniquely organized, coherent, and indeed,

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6. Chalmers Johnson (1982) coined the term "the developmental state" to describe postwar Japan and its pursuit of rapid economic growth at all costs through state-driven industrial development, "top-down" planning, and public-private partnerships (or collusion). He contrasted this approach to economic and technological policy with the regulatory approach of the United States, in which the state functions to maintain a relatively free market and to protect both private consumers and the public commons from commercial excesses. Although it incurred substantial collateral damage to public health and the natural environment, Japan's aggressive approach to economic policy and industrial development helped to facilitate its postwar "economic miracle," especially in the 1950s, '60s and early '70s. Long before Johnson's analysis, the Japanese themselves recognized these qualities of their state's system, which they captured concisely in the term: "Japan Inc." (株式会社日本, *kabushiki kaisha Nihon*). Kobe's nickname was a play on this term.

communal, for a large Japanese city. These experts not only shared a pedagogical and philosophical background that favored participatory approaches to planning and design, but they also shared productive, friendly and collaborative relations, both socially and professionally. These characteristics would help them to move rapidly in the aftermath of the earthquake to support the numerous *machi-zukuri*-based PRP endeavors in the months and years that followed.

Since the Meiji Era and the "opening" of much of Japan to international trade in the second half of the 19th century, Kobe had been a major port city. A mountainside neighborhood of European-style houses (a popular tourist attraction today), a large Christian cemetery, and a number of substantial masonry buildings near the shore of Osaka Bay remain as a testament to its early days as a center of international trade. By the end of World War II much of the shoreline remained undeveloped beach, while most of the city lay in ashes from American firebombs.[7] In subsequent decades, "Kobe Inc." developed the waterfront into a zone of industrial production. Joining the old sake breweries near the shore were large industrial concerns such as Kawasaki Heavy Industries and Kobe Steel. The latter built its own coal-fired power plant near its factories. The port itself became Japan's busiest, and was ranked among the top five globally at the time of the earthquake. The city also attracted international corporations, as companies like Nestlé and Procter & Gamble established their regional headquarters for East Asia in the city's central business district. Out on the city's periphery, it extended its municipal subway line to newly built stations that served as transportation and shopping hubs for suburban "New Towns" — planned bedroom communities with rows of identical apartment and condominium buildings.

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7. Readers may have seen this depicted in the popular Studio Ghibli animated film *Grave of the Fireflies*.

Meanwhile, homegrown machine-parts factories and small-scale "chemical shoe" manufacturers thrived in older, diverse, "inner city" working-class neighborhoods to the west of the city center.[8] Some of these neighborhoods had managed to avoid destruction in the war. Their major streets were no more than eight meters wide, with smaller back streets of less than three meters. The traditional *nagaya* (長屋, "long house") style of wood-constructed row house was typical for these areas. It was in the garages of these old houses that the owners operated their machine shops and factories. Japanese have a word to describe these kinds of old working-class neighborhoods of single-family row houses and narrow streets: *shitamachi* (下町, "down-town" or "low town"). The word typically connotes not only densely packed, older houses and shops with low-income, working-class residents and shop owners, but also a tightly knit social fabric and a strong, warmly supportive sense of community.

Many of the small business owners and other residents of these *shitamachi* areas in Kobe were members of minority groups: ethnic Koreans, Vietnamese, Chinese, and descendants of the historical *burakumin* outcaste group. Indeed, Kobe's ethnic makeup was more diverse than much of Japan. Its *"Nankin Machi"* is possibly Japan's best known "Chinatown" outside of Yokohama's.

In the late 1960s, residents of the Mano district, one of those neighborhoods known for its small factories and high percentage of ethnic Korean residents, formed an organization to fight pollution from larger factories in the area. The late '60s and early '70s were a period of intense environmental activism throughout Japan, in part as a reaction to a series of industrial pollution crises such as Minamata Disease, Yokkaichi

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8. "Inner city" is not my term to describe these areas, as in the American context it tends to be freighted with an imagined set of racial, cultural and socioeconomic characteristics, not necessarily representative of the *shitamachi* areas of Kobe or other Japanese cities. It is widely used by scholars, however; e.g., Hirayama (2000), Hein (2001), Olshansky et al. (2005), Edgington (2010).

Asthma, and Itai-Itai Disease.[9] Mano's protest group was not Kobe's first. Unlike other groups, however, it expanded and remade itself into an organization devoted more broadly to community development and the resolution of a range of local issues. Evans succinctly describes the group's evolution into a *machi-zukuri* organization, along with its crucial links to expert consultants and municipal planning officials:

> In 1970, the "*Machi-zukuri* School" (*machi-zukuri gakkō*) — an occasional series of lectures and workshops held by interested academics and specialist professionals on a variety of topics related to the residents' campaigns — first took place. These helped to provide residents' leaders and other interested residents in the area with some specialist knowledge of the issues, and also served to develop the local campaigns from the essentially defensive nature of the anti-pollution campaign to a more proactive agenda. … [B]y the end of the 1970s, work had started on drawing up a *machi-zukuri* plan — a comprehensive plan for the whole Mano district, comprising a vision statement and detailed guidelines on how this was going to be achieved. This involved inputs from three sides — the residents, Kobe City's planning department, and some interested academics and planners who acted as technical advisors to the residents. (Evans, 2001: p. 450-451)

After Kobe's planning department gained experience working with Mano and several other similar organizations elsewhere in the city, it passed Japan's first *Machi-Zukuri* Ordinance in 1981. (Kobe's ordinance itself followed on a 1980 addendum to the 1968 national City Planning Law, giving local administrations more responsibility for local planning decisions. Each successive passing of urban planning legislation by the national Diet in the postwar era attempted to further decentralize city planning.[10]) Kobe's ordinance officially recognized a role for *machi-zukuri* organizations in local planning and attempted to codify the city's experience in coordinating efforts with such

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9. See, for example, Broadbent (1999), George (2001), Walker (2010).
10. Bauman (1996), Evans (2002), Edgington (2010).

groups and expert consultants, to serve as a kind of "manual" for future endeavors.[11]

Ikuo Kobayashi, a professor of planning at Yamate University in Kobe, who is in many respects the "godfather" of Kobe's PRP expert community (as will become evident in subsequent pages), briefly describes the relationship of Kobe's newly institutionalized *machi-zukuri* organizations and its community of built-environment experts:

> By the 1980s, everyone had started thinking about what we could do for our town at the district level — for example, the Mano area, or Rokkō Island. Because of that, Kobe city made an ordinance for *machi-zukuri* and also systems for supporting those areas. According to the ordinance, Kobe city provided subsidies and a system for providing expert consultants to the districts. Because each *machi-zukuri* organization did not have an expert, we helped those organizations, and we got financial support from Kobe city.[12]

Although the city clearly saw *machi-zukuri* councils as potential partners in working out local details of planning work, some *machi-zukuri* organizations formed specifically to oppose Planning Department proposals, such as the establishment or augmentation of major trunk roads through neighborhoods. (Kobayashi: "The organizations dealt with many problems like noise pollution and air pollution along highways, or they opposed the construction of buildings."[13]) Thus, in practice, *machi-zukuri* groups (including Mano's) both contended and collaborated with the city's planning department, with the aid of expert consultant-liaisons, to provide feedback as well as pushback, and to implement their own local plans. Of course, the relationship between city officials and local planning groups was more contentious in some areas

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11. Evans (2002), Edgington (2010).
12. Kobayashi interview (February 2012).
13. ibid.

than others. In certain neighborhoods, the city had been stonewalled in its efforts to push through certain plans (e.g., expanded trunk roads) for years or even decades. Although the "top-down," aggressively pro-development, technocratic tendencies of "Kobe Inc." seemed to co-exist paradoxically with the local *machi-zukuri* organizations for which Kobe was also becoming well known, it may be that there was no paradox; rather, the former spurred the development of the latter, as a reaction of citizens against perceived incursions by the municipal administration into their private property and their neighborhoods.[14]

Just days before the earthquake in 1995, the city planning department had compiled a draft revision of its 1993 Master Plan. Included in these plans were a variety of large-scale, wish-list kinds of projects, such as an airport on a new artificial island, as well as a number of "district improvement" projects that would require cooperation with local *machi-zukuri* or *jichikai* (neighborhood associations). By the time of the quake, 28 *machi-zukuri* groups were operating in various neighborhoods around the city, 12 of them under the auspices of the *Machi-Zukuri* Ordinance.[15] Despite Kobe's reputation as a vanguard for community-based local planning through *machi-zukuri* councils, the majority of the city's neighborhoods still lacked these groups.

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14. Hein (2001), Evans (2002). This could also be seen as an example of *co-production*, in which technology and environment (e.g., urban infrastructure, machine factories, industrial pollution) and social orders (e.g., technocratic governing institutions, community-based organizations) mutually generate and shape each other. Cf. Jasanoff (2004).
15. Edgington (2010).

2.3: The "Mizutani Zemi," CO-PLAN, and Kobe's community of built-environment experts

In the 1970s, other large Japanese cities such as Osaka or Tokyo had multiple centers for their "built environment" professions, tied to the highly profitable and competitive major contracting corporations, which often viewed each other as rivals and refused to cooperate or share information. One of my informants compared these closed and mutually jealous camps to the guilds of medieval Europe.[16] In contrast, Kobe had a single center for these professions at Kobe University. Kobe's size and institutional landscape put it in the "Goldilocks zone" for the development of a vibrant yet cohesive community of experts. Kobayashi:

> Planning in the biggest cities like Tokyo and Osaka tended to be on a very large scale and backed by the national government, so those cities used major contracting corporations to do that work for them. Kobe and Yokohama were only major cities in which independent, individual planners (like me) could get work. At the same time, *machi-zukuri* was not likely to develop in a small city, so just one expert might be enough for that kind of work in a small city. A population size of about 1 to 3 million was necessary to support many experts.[17]

A local group of urban planners, architects, civil engineers and geographers coalesced around Eisuke Mizutani, a charismatic local professor who held successive positions at Kobe University and Osaka City University. Mizutani championed public participation in planning through community-based *machi-zukuri* groups. His followers and like-minded colleagues called themselves the "Mizutani Zemi" (from the German pronunciation for "seminar"). They shared information with each other freely. "Zemi" members — including academic scholars, scholar-activists, and practicing

16. Komori interview (May 2012).
17. Kobayashi interview (February 2012).

professionals — were united in their conviction that effective planning absolutely required the input of the people to be affected by the plans and their implementation.

In addition to sharing professional and philosophical convictions, members of this group were united socially as well. They played tennis together on weekends and created their own, informal tennis club — a subject about which they were almost as passionate as participatory planning and *machi-zukuri*. One former member of the club joked that the reason they later engaged in PRP so fervently after Kobe's earthquake was that all the tennis courts in the city had been co-opted as temporary housing sites.[18]

In 1986, two leaders of the "Zemi" pack, Kobayashi and Yoshimi Amakawa, formally institutionalized this tight-knit core group of experts by forming the CO-PLAN network of urban planners, architects and civil engineers, which eventually expanded to include an even larger group of built environment specialists in the Kobe area. Kobayashi:

> They had detailed knowledge about many different areas [of the city]. In order to grow the network bigger, we got people such as professors and people with experience in redevelopment. Individually, this person knew about that topic but not this one, and that person knew about this but not that, so with the network we were able to share and manage all of this knowledge. For example, everyone got together and talked about the current problems which each area was having and if those areas had had discussions with the authorities or not.... The concept for establishing CO-PLAN in 1986 and the Support Network for Disaster Recovery in 1995 were the same.[19]

After the earthquake, Kobayashi formed two other NGO's, spinoffs of CO-PLAN, including the "Restoration from the Hanshin Earthquake Disaster /

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18. Komori interview (May 2012).
19. Kobayashi interview (February 2012).

Supporters Network for Community Development *Machi-zukuri*" as well as the Kobe *Machi-zukuri* Research Institute, which still exists today and is more commonly called "Kobe Machiken" or "Machiken" for short.[20] The latter aims to consolidate and disseminate knowledge about *machi-zukuri* and participatory planning, including post-disaster PRP, and to serve as an institutional center for the community of those concerned with these processes — primarily scholars and practitioners, mainly from the built-environment professions, but also legal experts, officials and formally untrained citizens who might be involved with local planning. Its mission, described in greater detail below through a description of its *fukkō juku* (復興塾, "recovery school") includes the coordination of activities, norms and knowledge, the publicizing of the expert community's activities, and the training of younger generations of *machi-zukuri* experts.

Thus, Kobe's peculiar combination of social and historical characteristics — including its history of cultivating *machi-zukuri* organizations, its size and institutional landscape, and its socially and organizationally cohesive community of built-environment experts, with their own history of involvement in participatory, neighborhood-based planning — meant that by 1995 the city had become uniquely fertile ground for the germination of a field of expertise in participatory recovery planning.

20. "Ken" is short for *kenkyū jo* (研究所, "research center" or "research institute").

2.4: The earthquake and its aftermath

At 5:46 AM on January 17, the magnitude 7.3 earthquake erupted at the northern tip of Awaji Island to the southwest of Kobe and propagated along a previously unknown fault under the most densely developed and populated parts of the city toward Osaka to the east. Ground shaking reached the maximum *shindo* Level 7 on the Japan Meterological Association's ground acceleration scale and continued for 20 seconds to one minute. The shaking totally or partially destroyed some 150,000 buildings across the city. Most vulnerable were older, wooden, single-family homes with roofs of heavy, traditional tiles.[21] In addition, fires broke out in several areas of the city, consuming over 7000 more buildings. The areas most vulnerable to fires were those residential districts with many wooden homes packed densely together around narrow streets and alleys. In short, the *shitamachi* districts were the most vulnerable to both fires and earthquake damage. Demographically, these areas tended to be lower income, with high proportions of ethnic minority residents and a considerably higher average age than other areas. Compounding their vulnerability, the narrow streets of such districts severely hindered first responders and other would-be rescuers. All over Kobe, power and water systems were down, and a network of emergency water tanks provided an insufficient supply for fighting multiple fires that consumed whole blocks of houses.

While local first responders were overwhelmed, the central government was slow to respond. Rebuffing offers of aid from the American military, among other organizations, the government eventually sent the self-defense forces (SDF) to help with emergency rescues and immediate cleanup. However, many survivors say that they waited too long. Meanwhile, the Yamaguchi Gumi, Japan's largest *yakuza* group

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21. These tiles are said to be effective at resisting typhoon winds, but are a liability in an earthquake.

(and headquartered in Kobe), distributed food, blankets, and tents to needy people.[22] The relatively slow initial response of the government was the first of a series of missteps in the rescue and recovery periods that eroded public trust in authorities and inflected residents' responses to official recovery planning proposals in subsequent months.[23]

The earthquake killed over 6400 people, injured over 40,000 and forced over 315,000 into hastily constructed temporary shelters.[24] As is often the case in "natural" disasters, women, elderly, and low-income people were disproportionately affected. About 59% of all those who perished were over the age of 60; about 60% were women.[25] In addition, the quake partially or completely destroyed about 240,000 homes, while fires burned down an additional 7500.[26] The flames consumed about 800,000m2 of structures.[27] All told, the quake caused nearly JPY 10 trillion worth of damage, or approximately USD 100 billion, making it the world's single most expensive disaster — until it was roughly doubled on March 11, 2011.[28]

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22. Stories of the Yamaguchi Gumi's relative effectiveness in the days following the earthquake are commonplace among residents of Kobe. It was also mentioned in some of my interviews (e.g., Amakawa interview, February 2012) and reported in the media (e.g., Sterngold, 1995).
23. Shiozaki (2005). Cf. also Wynne (1992, 1996), Barrios (2010) and Dowty & Allen (2011) on the deleterious effects of official mismanagement, both recent and past, on public trust in authorities during post-disaster recovery.
24. Damage statistics vary somewhat with the source and date of publication; these are widely reported figures confirmed by the Japanese Red Cross Society (2007), the City of Kobe (2011), and Hyogo Prefecture (2013) (all in Japanese).
25. Honjo (2010), Otani (2010).
26. Hyogo Prefecture (2013).
27. Shaw & Goda (2004).
28. Hyogo Prefecture (2013), Reconstruction Agency (2013).

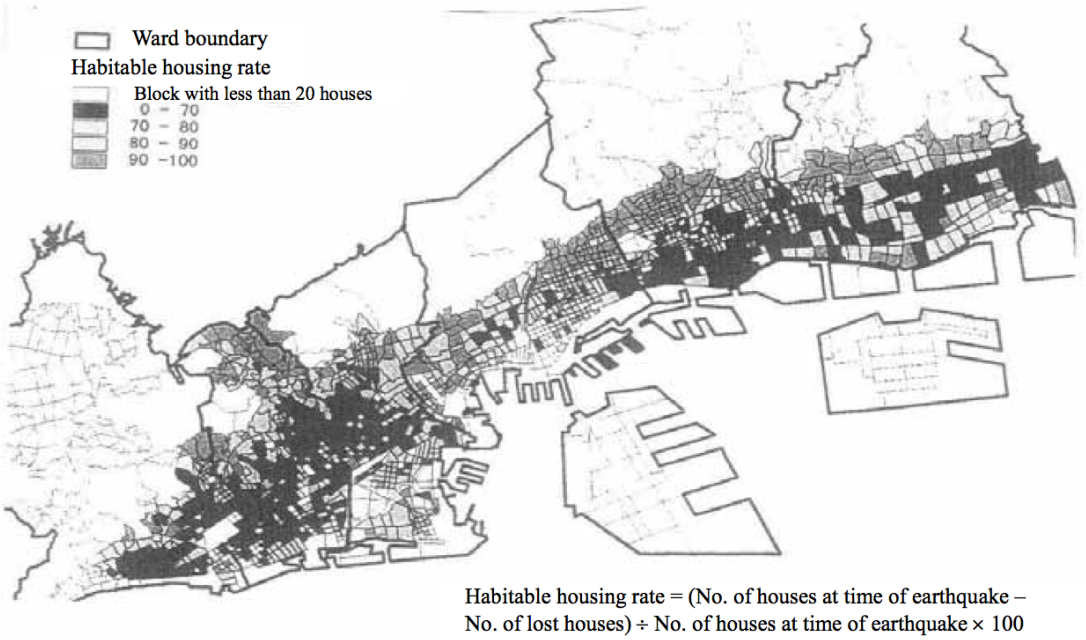

Fig. 2-2: Habitable housing rate after the earthquake. The pattern roughly shows the distribution of destruction. Source: Honjo (2011).

2.5: Recovery planning in Kobe: an overview

Less than two months after the earthquake, many victims were still in shelters or scattered across Japan's archipelago. At this time, the city's administration released its initial recovery plan to the public. The plan was hardly unchanged from the draft revision of the Master Plan proposed by the planning department shortly before the earthquake. It involved substantial use of eminent domain and "land readjustment" (区画整理, *kukakuseiri*)[29] especially in many of the hardest-hit areas, putatively to enhance safety and resilience against future seismic events. After the plan's unveiling, an angry crowd besieged City Hall, haranguing officials for taking advantage of them, as one resident said later, "like a thief at the scene of a fire" (火事場泥棒, *kajiba dorobo*). The residents, already upset by slow governmental rescue response, saw the rapidly produced plan as a cynical power play by the city to push through its rapacious development schemes while the voices of dissent had been silenced by the tragedy.[30] The five-hour confrontation ended only when Kobe's mayor (a former head of the city's Planning Department) made a dramatic about-face and announced plans for massive public participation in recovery planning, through the creation and support of neighborhood-based *machi-zukuri* organizations across the city. Each organization would be furnished with one or more consultants — primarily experts in the built-environment professions — who would be vetted, certified, and financially supported

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29. Land readjustment is the process by which ownership patterns are reconfigured, such as when the city widens a road, taking a portion of private property. This can be a long and difficult process in Japan, partly because the owner of the building is often not necessarily the owner of the land upon which it stands. A condominium building may be owned by a developer, while the individual housing units may be owned by different families, and all this may stand upon a plot of land owned by yet another company or individual. Thus, there are multiple owners to be consulted and brought into negotiations; achieving consensus can be a time-consuming challenge. Note that "land readjustment" is the standard term used by English-speaking urban planners; a more literal translation of the Japanese kanji characters might read "boundary arrangement" or "block organization."
30. See Edgington (2010), 107-120, for a detailed summary of this sequence of events.

by the city. Thus, Kobe's recovery planning was to blend the aggressively "top-down" technocratic style that typified "Kobe Inc." with the pioneering *machi-zukuri* approaches of local planning for which the city had also become known.[31]

Kobayashi and his CO-PLAN network were ready to take up the challenge of community-based participatory recovery planning.[32] Just after the earthquake, Kobayashi organized and then incorporated an NGO offshoot of CO-PLAN, officially named "Restoration from the Hanshin Earthquake Disaster / Supporters Network for Community Development *Machi-zukuri*." Once the city had designated the specific *machi-zukuri* zones, the planning department established an official registry for experts to assist these areas. Kobayashi's network was able to help fill this so-called "expert bank." The city assigned one or more of these experts to work with a particular district, often one with which they were already familiar — in many cases this was the expert's own neighborhood.[33] The city recognized some two dozen previously existing *machi-zukuri kyōgikai* and established many more, amounting to a total of over 100 active organizations covering every district in the city at the peak of recovery planning activity in the late 1990s. Close to 300 experts served as consultants to these groups through the city's official "expert bank." Although Kobayashi himself held no official position within the municipal administration, the city's planning department depended

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31. Bauman (1998), Hein (2001), Edgington (2010). The "Kobe Inc." style of planning is perhaps most readily visible in the large "symbolic" projects such as Kobe International Airport — an artificial island project which large poll majorities consistently opposed, but which the city pushed through using, in part, recovery funds from the central government of Japan.
32. Since the 1980's and the formation of CO-PLAN, Kobayashi had been a leader of the "Zemi" group and the wider community of built environment professionals in Kobe. Mizutani himself had died in 1993 of gastric cancer, at the age of 57. Having influenced planners and architects across Japan, his memorial service was attended by over 500 people, including such prominent figures as Tadao Andō and Sachio Ōtani.
33. In several cases, local residents rejected a city-provided expert in favor of one who lived among them, as described in Edgington (2010); Kobayashi interview (March 2012).

heavily upon him; most of the experts on the city's official list had been recruited through his network and his organizations. Kobayashi emphasized the importance of these experts' familiarity with the city's districts:

> During the disaster, we knew the areas that had suffered damage. Also because those areas had had various problems over the decades, we had already examined those places from a variety of perspectives. To put it another way, when we were sent to those areas as consultants, we could recognize what problems they were having or would have. We knew what kind of person would fit into each area and who had studied that area before.... Because we knew the places, we knew that the intervention of a certain architect or lawyer, for example, could solve their problems more effectively than others.[34]

Though the specific procedures and rates of progress varied from one district to another, *machi-zukuri* meetings began in many areas within months of the earthquake. Typically, meetings were held at least once per week, and often two or three times per week.[35] *Machi-zukuri* groups lent legitimacy to the city's efforts by providing avenues for public participation, while also providing coverage for recovery areas for which the city was unable or unwilling to provide significant resources. In addition, an influx of volunteers and NGO's into Kobe also helped to give local residents unprecedented access to technical expertise and other resources. One neighborhood group, for example, took advantage of these resources to conduct an environmental impact assessment (EIA) to bolster their arguments for changes such as the cleanup and renovation of a local park, which was viewed as a commons and a refuge vital to the social lives and general satisfaction of the residents.[36]

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34. Kobayashi interview (February 2012).
35. Tsuji interview (April 2012).
36. Evans (2001).

Kobe's initial plans for reconstruction involved the identification of 24 "Intensive Restoration Zones" that would receive significant support from the government and involve substantial land readjustment, or, in some areas, "urban redevelopment" (都市再開発, *toshi-saikaihatsu*).[37] Kobe's planning department had just completed a draft Master Plan several days before the earthquake struck; the recovery plan closely resembled that document. Later versions of the recovery plan retained the concept of the Intensive Restoration Zones, with the eight most "intensive" identified as "black zones" on a map. These areas were not chosen for the severity of damage alone, but for other reasons as well, such as specific features that the city thought could be exploited to enhance economic rejuvenation. In addition, there were 16 somewhat less intensive "gray zones," leaving the rest of the city — "white zones" — essentially unsupported, save major infrastructure. The so-called "black zones" constituted only 3% of the city's area, while the vast majority of the city was left as "white zones," despite the fact that much of this area was more heavily damaged than even some "black zones".[38] Although the city officially recognized expert consultants for recovery *machi-zukuri* in all areas, it provided funding for expert consultants primarily in the black and gray zones.

Kobe's recovery over the following 5 to 10 years was uneven, with notable

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37. Whereas land readjustment generally allows landowners to keep their plots, albeit at the cost of giving up some portion of their land without compensation (減歩, *genbu*), in urban redevelopment projects the city consolidates all of the land within a specified area and then redevelops the area and reapportions ownership. Owners are generally offered compensation and given the option to sell their portion to the city. In the Shin-Nagata district of Kobe, for example, some neighborhoods of densely clustered single-family homes, destroyed by fires, were redeveloped into blocks of widely spaced condominium buildings. Since many owners preferred their private homes and their old *shitamachi* neighborhood, many residents opted out of the new developments.
38. One question about which Edgington (2010) speculates but does not systematically investigate is why the "white zones" rebuilt more quickly than the "black" and "gray zones." Indeed, most scholarly research on recovery in Kobe has focused on the "black zones," leaving the geographic majority of the city relatively unexamined.

successes as well as failures. Neighborhoods with a tradition of organized community action, such as Mano, and neighborhoods with access to significant resources were able to influence recovery planning and outcomes more successfully than other areas.[39] A number of issues and challenges arose in districts across the city. In black zones, fierce battles over land readjustment ensued, and the need to secure near-total consensus from all of the residents involved prolonged the recovery planning process, such that recovery in these areas often took longer than that in the white zones in which people were left to their own devices.[40] On the other hand, few people received any financial support from either the government or from insurance. Only 16% of the city's residents had earthquake insurance. More had fire insurance, but the insurance companies successfully argued in court that they were not liable to compensate for damages from fires resulting from seismic activity.[41] There were other problems, as well. Renters were largely disenfranchised in recovery planning processes; only property owners had legal rights in housing and planning-related negotiations.[42] Temporary housing facilities were often located far from the communities they served, uprooting residents from their neighborhoods and relocating them far from their neighbors and jobs. A lottery system to determine who could enter these numerically inadequate facilities broke up communities and groups of neighbors, separating them from each other. A "single-track" housing policy, in which prospective residents of newly constructed public housing facilities were expected or required to have been seeking refuge in a temporary housing facility (rather than with, for example, friends or relatives), restricted housing options and prevented many families from receiving the

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39. Yasui (1997, 2007), Evans (2002), Olshansky et al. (2005), Edgington (2010), Aldrich (2012).
40. Olshansky et al. (2005), Edgington (2010).
41. Shiozaki (2004).
42. Edgington (2010), Maly & Shiozaki (2012).

support they needed.[43] For many who finally moved into permanent public housing after several years of living in temporary housing facilities, in which new relationships were forged under harsh conditions with new neighbors, the final move amounted to yet another separation from community. Perhaps most notoriously, all of the issues described here, many of which led to increased social isolation and the dissolution of community, led in turn to alarmingly high rates of *kodokushi* (孤独死, "solitary death") among elderly *hisaisha*, in which residents of temporary or newly built public housing facilities would pass away, alone and without anyone noticing for some time.[44]

Despite all of these problems, Kobe's recovery has been credited with a rapid blossoming in popularity of *machi-zukuri*, as well as a "renaissance" of volunteerism and a strengthening of civil society, across Japan.[45] In many districts, the results of the local recovery planning projects have become a source of pride, and many *machi-zukuri* organizations have persisted to this day, long after disaster recovery-related efforts have ended. For the members of CO-PLAN and its disaster recovery-focused incarnation, Kobe's recovery became a showcase for their particular approach to participatory recovery and urban (re-)development planning. Although the city's recovery was by no means unproblematic and the results of these *machi-zukuri* groups varied significantly from district to district, Kobe's experience with *machi-zukuri*-based recovery planning was widely viewed across Japan as successful overall. Its acceptance by the broader planning professions as the standard Japanese approach to recovery planning is demonstrated by the fact that in Tōhoku today, expert consultants from all over Japan have attempted to adopt or emulate some variation on the "Kobe style" of participatory recovery planning.

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43. Maly & Shiozaki (2012).
44. Shiozaki (2004), Otani (2010), Maly & Shiozaki (2012).
45. Evans (2002), Shaw & Goda (2004).

Fig. 2-3: A *bōsai* (防災, "disaster mitigation") exercise in Shin-Nagata, Kobe. Local children and seniors participate in these regularly conducted drills, practicing fire suppression and other emergency response techniques. The logic of these exercises, organized by the neighborhood association or sometimes the local *machi-zukuri* association, is that the next earthquake might strike during the middle of the day, when most working-age adults are at work; thus, children and elderly residents must be prepared to fight fires and help each other in the event of a disaster. Photo by author (January 2012).

2.6: *Machi-zukuri* and expert activities for Kobe's recovery

Although many of Kobe's recovering neighborhoods faced common challenges and aspired to similar goals, such as the successful negotiation of land readjustment processes in black zones, the precise objectives and activities of Kobe's *machi-zukuri* groups and their consultants varied from district to district, consultant to consultant. Each of the following vignettes highlights a single district or group of residents working with a particular consultant, to illustrate empirically the scope and variety of the actual work of "recovery planning." The vignettes demonstrate how these consultants were developing their techniques and expertise in facilitating public engagement and participatory recovery planning processes.

2.6.1. Komori: expanding participation in Higashinada

Seiji Komori is the current President of the Kobe *Machi-zukuri* Research Institute, one of Kobayashi's CO-PLAN spinoff NGO's,[46] and an emeritus professor of geography at the Himeji Institute of Technology. He is slightly older than Kobayashi and Nozaki, more of a contemporary of Mizutani. After the earthquake he helped to coordinate the reconstruction of his own condominium building in one of the city's many white zones. Even this relatively small-scale project taught him valuable lessons about public engagement and facilitating broadly participatory planning processes:

> I lost my condo in Higashinada. So my first job [of the recovery] was to reconstruct that condominium building along with my own residence. Approximitely 100 condominium buildings were damaged by Hanshin-Awaji, and I think 70 to 80% of them were rebuilt. Our building was the first one which resolved to rebuild and also the first one to be reconstructed, so we got a lot of attention from mass media. I

46. Known as "Kobe Machiken" or "Machiken" for short.

worked as the leader of that project. At that time I was the dean of a university in Himeji.

We had a meeting in Osaka to discuss our condo just two weeks after the disaster, and many husbands and wives came together from their temporary housing shelters. If only husbands had participated, they might have just argued the meeting away in a battle of words. If only wives had participated, they could not have made the financial decisions [for their families]. But, coming to the meeting from far away, the participation of many couples together helped a lot for us to make decisions during the meeting quite quickly. I advised Nozaki that only men's participation just brings argument and only women's participation cannot bring a conclusion.[47]

My way of conducting the meeting was asking couples to discuss and make their decisions at the meeting itself. As I proceeded… I learned how to get consensus, what kind of information I should gather, and how to focus the subject of the meeting…. I had not had that kind of experience before. The way of making decisions I was accustomed to was through discussions of male-only representatives at faculty meetings or the like. Making no moves without full family agreement was totally new to me. So I learned how to move forward through consensus from Hanshin-Awaji.

I learned that, by being far from the actual location where things are happening, or just by virtue of being a man, I might not be able to understand a situation. Therefore, I learned that, in order to understand a situation, the truly important thing is to go to the actual place, to study on site, and to take those lessons sincerely to heart.[48]

In short, in addition to practical skills at facilitating deliberation and achieving group consensus, Komori learned the importance of viewpoint (particularly of gender), of broadening representation in participatory processes, and of local perspective that cannot be appreciated anywhere but *in situ*. In my many interactions with PRP experts in Kobe, I heard variations on Komori's learnings intoned periodically by others as well, indicating that many of them had also learned the same lessons. Indeed,

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47. As will be seen in Chapter 4, Nozaki apparently heeded Komori's advice.
48. Komori interview (May, 2012).

Komori's off-hand aside that he "advised Nozaki" about some of his lessons learned demonstrates the sharing of lessons and the mutual learning in which these experts were engaged.

2.6.2. Morisaki: forging consensus in Noda Hokubu & Takatori

Teruyuki Morisaki is a local architect from the heavily damaged Shin-Nagata area, which included several districts that suffered extensive fire damage. He was involved in recovery planning with at least three of these districts, including the contiguous Takatori Higashi and Noda Hokubu areas just south of JR Takatori Station, both of which were old *shitamachi* neighborhoods with narrow streets and single-family homes. Noda Hokubu had already established a *machi-zukuri* association in 1993, while Takatori set up its own *machi-zukuri* group only after the earthquake. Just two months before the earthquake, one of the Noda Hokubu *machi-zukuri* group's early projects had just been completed. A diamond-shaped park between the two districts had been expanded and festooned with fire-resistant trees, with an eye toward disaster risk reduction. The park is widely viewed as having helped to restrict the area of fire damage to the Takatori Higashi district, as most of the Noda Hokubu area to the park's west was spared, while Takatori was extensively burned.[49]

The burned area was designated a "black zone" by the city and required to undergo land readjustment. All roads would be widened, and residents would therefore need to give up some portion of their land through eminent domain. The unburned majority of Noda Hokubu was designated a white area, even though its *shitamachi* townscape shared similar vulnerabilities with Takatori and despite the fact that it had suffered substantial seismic damage in the earthquake. Because the two

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49. Q.v. Fig. 2-4.

districts were so closely linked, and both *machi-zukuri* groups were working with Morisaki for their recovery planning projects, the residents of Noda Hokubu embarked on a similar process of negotiating new standards for road widths and land usage as Takatori, even though its status as a white zone meant that such efforts were not mandated by the city.

Within each district, smaller sub-planning groups, based on individual blocks, formed. Thus, a blizzard of recovery planning meetings followed, some at the block level, some at the district level, and occasionally some at the joint-district level, involving both *machi-zukuri* associations and residents from both districts. After considerable deliberation, complaining, negotiation, and voting, ultimately the Takatori district's land readjustment process resulted in an average *genbu* (減歩, the percentage of land taken by eminent domain) of 9%, just under the city's initially proposed 10% rate.[50] Morisaki was able to facilitate consensus on this number by patiently discussing the issue with residents and city officials together at numerous *machi-zukuri* meetings. At these meetings, where at least 90% of participants were older, male heads of households, Morisaki explained the advantages of a swift agreement to the city's requests while acknowledging the painful consequence of reducing the size of plots for homes and businesses. Often, irate residents at these meetings would explode in angry outbursts. Morisaki's response would be to repeat the resident's complaints and express sympathy with the resident's position. However, he maintained that the costs of drawing out the recovery by fighting the city for a few percentage points were considerably greater than what might be gained through such an oppositional stance.[51]

Ultimately, not all residents were able to rebuild on their smaller plots of land. Others were able to rebuild through the construction of cooperative housing or the use

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50. Noda Hokubu *Machi-zukuri* Council (2005).
51. Morisaki (1998); Noda Hokubu *Machi-zukuri* Council (2005).

of cooperative rebuilding techniques. The former is simply multi-family housing in which residents share common areas or live in different parts of the same building. The latter is both a construction technique and a legal strategy in which two or more families agree to share, for example, a wall between their two houses, which are jointly constructed. This allows them to eliminate the meter of space between the structures that is usually required by Japanese building law.[52]

In Noda Hokubu, Morisaki and the residents were able to enforce a kind of voluntary land readjustment policy, allowing for the expansion of roads from less than 3 meters to effectively 4 or 5 meters, through several creative solutions. First, they worked together to produce a District Plan for the Appearance of the Townscape, which set goals and guidelines for neighborhood planning and building. For example, the plan explicitly established the goal of rebuilding and maintaining a *shitamachi* kind of townscape and community. In addition, the plan specified that home owners set their structures back 50 centimeters from the front of their property, which effectively expanded the roads by a full meter. This permitted the upper floors of these homes to be used more fully, whereas usually these floors were restricted by slant plane regulations.[53] By agreeing to maintain 50 centimeters of their private property as publicly accessible space, owners would be able to use the full floor space on the second and third floors of their homes, which would slightly overhang the 50-centimeter setback of the street level, rather than slanting back at an angle

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52. Hein (2001).

53. The "slant plane" is a plane that is articulated at a given angle from the curb on the far side of the street back over a building on the near side. This plane establishes a forward, street-facing boundary beyond which a structure may not extend. Thus, the forward-facing walls of the second or third floors of a three-story building may resemble a steeply slanting roof, perhaps with windows cut into it. The result is reduced usable floor space on the higher floors of the structure, relative to a block-shaped building with vertical walls from ground to roof.

proportionate to the width of the street as generally required by law.[54]

Through such creative planning innovations, Morisaki was able to find ways to satisfy both the city's requirements for "safer" neighborhoods as well as most residents' desires to continue using as much of their property as possible.

2.6.3. Tsuji: finding the middle path in Matsumoto

Nobukazu Tsuji is an officer of Kobe Machiken and a frequent visitor to various parts of Tōhoku. Prior to Kobe's earthquake in 1995, he was an urban planner and a member of the Mizutani Zemi and Kobayashi's CO-PLAN. He worked on urban redevelopment projects with *machi-zukuri* groups. After the earthquake, Tsuji served as the primary consultant for the heavily fire-damaged Matsumoto district. The roads of this district needed substantial widening, requiring residents to undergo a process of land readjustment. As in Takatori and Noda Hokubu, residents went through a process of negotiation over how to accomplish this readjustment and rebuild on smaller plots, while simultaneously allowing for wider roads and yet maintaining, as much as possible, the intimate *shitamachi* feeling of the townscape.

> What we call the "Kobe style" of having an expert consultant work with a district's machi-zukuri council was already established in Kobe before the Hanshin earthquake. After the quake, Kobayashi told the city that we would have to use that system [for recovery planning], and considered which consultants should be sent to which districts. We thought that experts who had already researched a district, worked with that district, or had knowledge of it before the earthquake should be assigned to that district. I am from the Matsumoto district, so our thinking was that the consultant to work with Matsumoto district had to be me.
>
> In Matsumoto, although only a few people passed away, almost the whole area was burned down. At the time, Matsumoto's neighborhood associations (NA's) were

54. Morisaki (1998), Hein (2001). Q.v. Fig. 2-5.

> breaking up, and some areas of the district didn't have any. We built a machi-zukuri council without any connections to the NA's, although we got some people who had previously been involved in the old NA's that had broken up. My style is to involve both people who were prominent in the old community and also some people who hadn't been. In the first 6 months we held 60 meetings. Since a machi-zukuri system hasn't been set up in Tōhoku yet, they haven't had such frequent meetings there. In Matsumoto, the city decided that we had to use land readjustment for our recovery process. Everyone had to face that reality. Through the planning process, I tried to help people to realize that working with the [city] government would ultimately be more productive than trying to oppose their plans.[55]

The signature achievement of Matsumoto's recovery planning was its innovative plan for widening trunk roads without incurring the blight of wide, parking-lot-like avenues cutting broad, divisive swaths through the neighborhood. Working with Tsuji, residents came to an agreement with city officials that the required 17-meter overall trunk road width could include, not only sidewalks, but also vegetation and even small parks. The result was a somewhat widened road flanked by broad, tiled sidewalks, with a small, winding stream and small trees integrated into one sidewalk on one side of the street. The stream flows under cross streets and is gathered into small pools on each corner, into which the residents placed *koi*, the large Asian carp that features prominently in many Japanese religious and cultural traditions.[56]

Tsuji describes the cooperative working relationship among the administration, the residents, and expert consultants as critical to the success of participatory recovery planning processes and *machi-zukuri* projects in general. He asserts that this "triangle," in which each role is given equal weight and importance, is the very essence of the "Kobe way" of expert-facilitated participatory planning.[57] Within this triangle, the

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55. Tsuji interview (April 2012).
56. Q.v. Fig. 2-6.
57. Tsuji (1998).

expert's role is not only to mediate between officials and residents and to help generate creative solutions to planning challenges, but also to "put himself in the position of the local people, to think like the local people."[58]

2.6.4. Nozaki: enrolling networks in Uozaki

Ryuichi Nozaki is an officer of Kobe Machiken and an active facilitator of PRP *machi-zukuri* groups in Kesennuma. He holds an architect's degree and license, but prior to Kobe's earthquake he had not worked as an architect or planning consultant. After the quake, he did volunteer work in the rescue and immediate recovery period. As a former Zemi member, tennis player, and friend of Kobayashi and Amakawa, he was recruited to help with recovery planning in the Uozaki area, a white zone.

> If I had had experience as a consultant, I could have participated in a black or gray zone. So I worked in a white zone. The most important thing in the white zone was to get residents' consensus. If you could get agreement from everyone, you could also get support from the government. The area was a white zone, and everyone needed to use their own money, but if the residents could all reach consensus, Kobe city would support consultants to be sent to help.
>
> I mainly worked in Higashinada Ward. With my architect friends from about 60 offices in the region, we formed the Kansai Volunteer Architects group. My friend was a leader of a shelter in the Uozaki area. He asked me to help the people in that shelter. I held consultations with residents and colleagues from the Kansai Volunteer Architects group every Saturday and Sunday. We gave advice such as informing people whether their house was structurally okay or not. Because of our advice, the number of people who could go home increased. One day, we held a recovery symposium. This big tent at Uozaki elementary school was our base, and we used a scale model of the area made by volunteer architecture students from all over Japan.

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58. Tsuji (1998), Tsuji interview (April 2012). *Kinmokusei* (1999) also describes this "triangle" relationship as the "Kobe System." Q.v. Fig 2-7.

> Displaying those models, we gave a variety of suggestions[59] — for example, to rebuild a simple wooden house, or to use a shipping container as a house…. For example, we showed how to build a house quickly using shipping containers, and then how to add on to it later, once the residents were in better shape financially…. We held the symposium once a month, starting in April. Professors from Tokyo came and gave lectures, too. People who had evacuated to other areas also came and participated. We were all thinking about *machi-zukuri* together. After the symposium, I had an opportunity to work with some people as a consultant on some residence reconstruction projects.[60]

Nozaki's story illustrates the importance of professional networks (and volunteer networks) in the recovery. The Kansai Volunteer Architects were an NGO separate from Kobayashi's network, though with a great deal of overlap in membership. In addition to practicing *pro bono* work for residents, the network mounted an effort for collective, mutual learning and communication, with its monthly symposium and invited speakers. Notably, the symposium involved non-expert residents and evacuees as well as academics and professional architects.

Nozaki notes that eventually he was able to procure some (income-generating) work on specific reconstruction projects. For most consultants in white zones, this was their only opportunity for any significant compensation for their efforts. Even in black and gray zones, government-provided compensation for their consulting work was paltry compared to what they could earn on design and construction projects that derived from *machi-zukuri* planning. The very fact that consultants can eventually make money from reconstruction projects can become an obstacle to trust between them and the residents with whom they work. Note that many residents in Tōhoku are

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59. Nozaki mentions that the volunteer architects used a scale model to give advice to local people. Different uses of such models will play a significant role in expert-resident interactions described in Chapter 4.
60. Nozaki interview (February, 2012).

aware of this fact. Some have expressed a certain degree of skepticism toward the PRP experts because of this.[61] Consultants themselves downplay any compensation they receive for their efforts, whether it be government remuneration or potential private income. They engage in *trust-work* to fortify trusting relationships and to overcome any skepticism by residents, as I discuss in Chapter 5. Nozaki notes that his group encountered difficulties with trust issues in Kobe, due to their approach, the public's unfamiliarity with their organization, and his group's relative lack of institutional accreditation:

> By Japanese law, buildings need to be set back at least two meters from a four meter road. These laws were made after World War II. Before the war, unethical builders just built and left, and many of those buildings cannot be rebuilt in the same place. There are certain places where they can only be reconstructed if they are re-built as cooperatives with adjoining properties. [After the quake,] we searched for those kinds of landowners and send them letters to ask if they were interested in our help, but most did not show any interest. There were a few places where we met with some owners, of total of eight that wanted our advice. Out of those eight, five could build cooperative apartments and started living there. Because the Kansai Volunteer Architects group had not been approved by the government, it could be hard for people to trust us, just by being sent a sudden letter. That might have been the biggest problem. Also these areas had a lot of renters, and in some cases land owners were actually opposed to rebuilding. But I think that one of the biggest reasons landowners objected was that they could not trust us because they just didn't know about us.[62]

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61. Hatakeyama interview (March 2013).
62. Nozaki interview (February, 2012).

Fig. 2-4: Aerial photograph of Takatori and Noda-Hokubu districts after the earthquake and fires. Note the diamond-shaped park near the center and the extensive fire damage to the east. The park is widely believed to have acted as a fire break, preventing the spread of damage. Source: video screenshot from Noda Hokubu *Machi-zukuri* Council (2005).

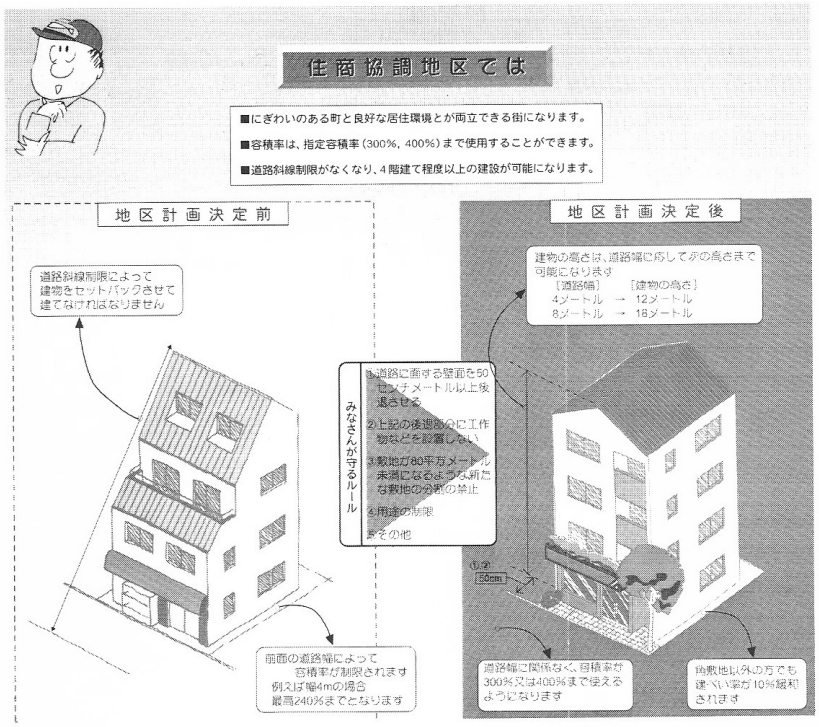

Fig. 2-5: Diagram of Morisaki's solution to enhancing usable upper-floor space, with visual explanation of the "slant plane" concept. Source: Morisaki (1998).

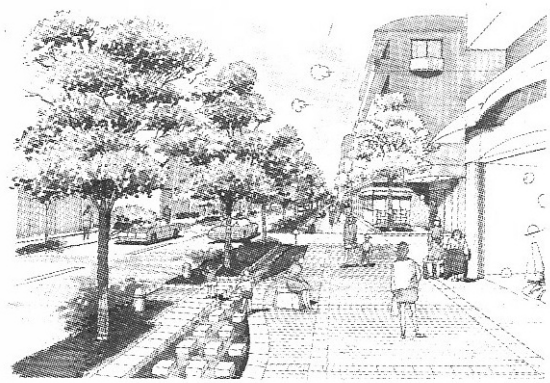

図６　イメージ図

Fig. 2-6: Illustration of the street widening plan for Matsumoto district, incorporating broad sidewalks, shade trees and a small stream. Source: Tsuji (1998).

2.7: *Kinmokusei:* constructing a community of PRP experts

Many districts' *machi-zukuri* organizations produced newsletters for the benefit of their communities. Similarly, Kobayashi's NGO produced its own newsletter, *Kinmokusei*, named after a fragrant olive tree native to many parts of East Asia. Here is the description of the newsletter given in the preface of the NGO's publication *Key Terminology in Restoration from Hanshin Earthquake Disaster (English Version)* (henceforth "*Kinmokusei (1999)*"):

> "Kinmokusei" was the newsletter published right after the earthquake to exchange the information and to support the communications among the professionals who consulted and supported the restoration in the community. The newsletters reported the restoration projects of the Network members and gave out the information of the restoration activities in the damaged area. These reports and information are precise records of actual conditions of the restoration from the earthquake disaster in the urban area. They gave us a lot of lessons about the future Machizukuri: community development.[63]

As the description notes, the newsletter served as a vehicle for group communication and collective learning within the community of consulting professionals. Perhaps more precisely, it served as a *record* of this communication and learning. Experts regularly held meetings and symposia to update each other on the latest news of their projects' progress and to learn from each other's ongoing challenges and experiences.[64] Furthermore, in addition to the *Kinmokusei* newsletter, Kobayashi's NGO published a quarterly compilation of *machi-zukuri* newsletters from individual districts, as a step-by-step record of the city's recovery progress. In one *Kinmokusei*

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63. Available online: http://www.gakugei-pub.jp/kobe/key_e/en1001.htm. In the official English version here, *fukkō* (復興), which I have generally translated as "recovery," is rendered as "restoration."

64. *Kinmokusei* (1999), Amakawa interview (March, 2012).

article, network member Yasuyoshi Hayashi, recalls the crucial role played by Kobayashi in coordinating the effort to muster built-environment experts for the *machi-zukuri*-based recovery planning effort:

> The thing that I clearly remember even now is the facsimile from Mr. Ikuo Kobayashi. Ten days hadn't passed after the earthquake when Machizukuri consultants and architects started "Restoration from Hanshin Earthquake Disaster/ Supporters' Network for community development 'Machizukuri' ".
>
> I guess that the reason why many "Machizukuri specialists" could rush to the damaged areas so quickly was that they couldn't stop themselves from doing it because of their eager zeal to help the victims, as well as the fact that they had connections with various areas before the earthquake.
>
> It is already well known that these specialists worked together, not individually, and established a network, supporting each other, and that acting in partnership with the local government they became an important power for restoration. I think that it opened up a totally new way for "Machizukuri specialists" to make a contribution to society and has had significant results, unlike in the past.[65]

Hayashi's account calls attention to the important fact that many of these experts were locals themselves. In addition, he emphasizes that these individuals "worked together, not individually," as a community, and that they coordinated their efforts with the support of local government. On the question of what makes these "*Machi-zukuri* specialists" unique, and why, perhaps, their efforts "had significant results, unlike in the past," Hayashi continues:

> Special domains such as land readjustment, redevelopment, engineering and architectural design played an important role in previous disaster restorations. In this restoration "*machi-zukuri* specialists" who think about "*machi-zukuri* together with residents" had an important role along with these specialists. The feature of these new

65. *Kinmokusei* (1999).

> specialists is that they don't think about restoration from systems' and methods' points of view, but that they try to think how they can meet the needs of residents from "life's points of view", that is, "reconstruction of residents' life and housing and reconstruction of the community". "*Machi-zukuri* specialists" are a new breed of specialists who specialize in thinking about restoration in cooperation with residents.[66]

As Hayashi notes, the collective efforts and experiences of these experts in a range of specialized fields, including architecture, urban planning, law, and geography, all working on community-based participatory recovery planning, ultimately produced "a new breed of specialists," a distinct community of experts whose new field of expertise was the facilitation of participatory recovery planning with non-expert residents through *machi-zukuri* organizations. The "Kobe System," with its triangular relationship among residents, officials, and PRP experts, was born.

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66. From the English version of *Kinmokusei (1999)*. In this translation, *fukkō* (復興), which I generally translate as "recovery" throughout this dissertation, is rendered as "restoration." Here, *semnonka* (専門家) is translated as "specialist(s)"; "expert(s)" is an equally common rendering.

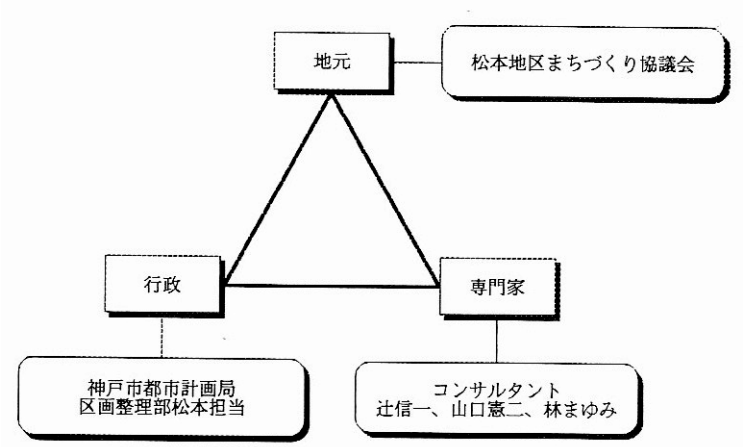

図２　まちづくりの三角関係

Fig. 2-7: Diagram of the triangular relationship uniting (from top, clockwise) "local area," "experts," and "governing administration." The rounded boxes specify (from top, clockwise) "Matsumoto District *machi-zukuri kyōgikai*," "consultant (names)," and the Kobe City Department of City Planning. Source: Tsuji (1998).

2.8: After Kobe: Tōhoku, the *Fukkō Juku*, and the legacy of Kobe's PRP expert community

Since the most intense years of Kobe's recovery planning in the late 1990s, Kobayashi and other members of the recovery planning expert community in Kobe have extended their influence internationally. For example, they traveled to Taiwan to assist recovery planning efforts after the so-called "921 Earthquake" in 1999. (Also, the Catholic church in Takatori shipped its famed Shigeru Ban-designed Paper Dome church building to Taiwan to be reconstructed there.) In addition, they have participated in study exchanges with American recovery planning experts such as Robert Olshansky and Laurie Johnson in post-Katrina New Orleans and elsewhere. Furthermore, they have published a number of articles and books on *machi-zukuri* and post-disaster recovery planning.

In 2004 a magnitude 7.3 earthquake struck central Niigata Prefecture near the northwestern coast of Honshu. Fortunately, this "Chūetsu" area of Niigata was not densely developed or populated, limiting severe damage mostly to small villages like Yamakoshi (population approx. 2000). It was, nevertheless, the strongest and most destructive quake to hit Japan since Kobe. Kobayashi's Kobe *Machi-zukuri* Research Institute ("Kobe Machiken") put together a Chūetsu *Juku* for themselves and younger members of their network. ("Juku," or 塾, is often translated as "cram school", and typically used to refer to supplementary after-school study classes for young students. Here, it might best be translated as a "study group" or an informal "school.") Some of Kobe's PRP experts went to Yamakoshi and nearby towns to provide advice and to aid the recovery. In addition to Hanshin-Awaji veterans like Kobayashi, members of a younger generation also participated. Furthermore, Chūetsu also attracted recovery planning experts from other areas of Japan. Thus, it was a place for different groups and generations of experts to practice their own approaches, whether that be to try to

emulate experiences from Kobe or to try new techniques. Like the meetings and symposia held by Kobayashi's network after Kobe's earthquake, the Chūetsu *juku* provided a space for those based in Kobe to update each other on their progress and to share their experiences. It also provided a model for the *3.11 Shien Fukkō-Juku* (3.11 支援復興塾, "March 11 Support Recovery Study Group"), a similar endeavor instituted after March 11, 2011.

Today, the core group of experts from Kobayashi's network with experience in Kobe's recovery are now in their 60's and 70's. Kobayashi and Amakawa still run CO-PLAN, but Kobe's community of built environment and disaster recovery experts has diversified as it has grown, with different social and professional circles centered upon various academic departments within several universities, as well as upon government and international and nonprofit organizations, and a few private firms. These circles also depend somewhat upon age, as some younger experts now work with minimal interaction with the old guard. As part of Kobe's recovery, Hyogo Prefecture, with the help of the Japanese national government, built facilities in a new waterfront development called "HAT Kobe" (HAT="Happy Active Town"), which include the Great Hanshin-Awaji Earthquake Memorial Museum as well as office buildings designed to house international organizations dedicated to studying disaster recovery and risk reduction, such as the Disaster Reduction and Human Renovation Institution (DRI), the International Recovery Platform (IRP), and various UN branch offices.[67] Therefore, in addition to the local community of built environment design practitioners and disaster recovery experts, there is a new concentration of publicly funded, policy-oriented international expertise. It is no accident that the successor to

67. A reminder that, as mentioned in the introduction, I worked at IRP for about a year from 2012 to 2013, participating in the international and governmental sides of Kobe's disaster expert community.

the 1994 UN-authored Yokohama Strategy for international disaster risk reduction was the 2005 Hyogo Framework for Action (HFA). Currently, Japan again is leading the effort to put together the next international agreement, with plans to host the meetings in 2015, most likely in Sendai.[68]

"Kobe-based experts" are by no means a monolithic bloc. They are a growing and diverse group. However, through Machiken's *fukkō-juku*, Kobayashi and the core gang of those old hands who had been directly involved with Kobe's recovery are now using Tōhoku as an opportunity to help train their successors, producing the next generation of experts in their interdisciplinary field of participatory recovery planning.

The *fukkō-juku* is generally held on or near the 11th of each month, from 6:30 to 9:30 pm. It receives some support from Kobe City and Hyogo Prefecture, and is held in large meeting rooms in government buildings. Attendance varies from a dozen to perhaps 50 participants or more. Participants include not only PRP experts, both academic and professional, but also journalists, government officials, business consultants, volunteers (such as Kobe's Valentine Team), and interested members of the public (including former residents of Fukushima Prefecture, who relocated to Kobe following the disaster). There is an entrance fee of 500 yen (about USD $5) per person. The current president of Machiken, Seiji Komori, opens and closes each meeting. Usually, Tsuji facilitates the meetings as emcee, encouraging presenters to stay within time limits and asking questions. The presentation schedule is not determined beforehand; rather, presenters put a sticky note with their name and the name of their topic on a white board at the beginning of each meeting. The number of presenters

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68. Given that the experience of Fukushima has made obvious the porosity of boundaries between natural and technological disasters, one might assume that the successor to the HFA would explicitly acknowledge this point. Surprisingly, however, it appears that the Japanese government has expressly forbid any such explicit mention of the nuclear crisis (according to highly placed sources directly involved in preliminary talks, with whom I have spoken).

determines the time allotted to each. Each presenter discusses his or her "recovery support" activities for Tōhoku since the previous meeting. For example, Nozaki presents updates on his activities with *machi-zukuri* and collective relocation planning groups in Kesennuma. A younger member of Nozaki's team might give an additional presentation on another aspect of their activities. Kobayashi describes his efforts to bring student groups from Kobe and from Taiwan to Tōhoku, to teach them about the recovery while providing volunteer services to local people. Chiharu reports on the latest volunteer work of the Valentine Team. Yamaji presents findings of her research on gender in recovery. After each presenter, audience members are given a chance to ask questions. Quite often, the Machiken leaders such as Kobayashi, Komori or Tsuji ask questions or make comments. At the end of the evening, every attendee who did not present is asked to give a brief self-introduction and to give a reaction to the meeting's contents — be it a general response or a specific question or comment for a certain presenter.

Here follows an example of an exchange at one *fukkō-juku*. Nozaki's team has just returned from a trip to Tōhoku. He and Rumi are presenting a report on their activities, which included discussing the concept of collective housing with residents in several districts of Kesennuma. Okuda, a researcher from Kyoto University, and Komori engage them in dialogue about whether or not collective housing is a viable solution for residents of Tōhoku. In order to demonstrate the variety of issues discussed and to give a fuller sense of the texture of these exchanges, I will refrain from editing the dialogue down to a few, selectively significant statements.

> **Nozaki** (Machiken officer): I told *machi-zukuri* participants [in Tōhoku] which kinds of houses we built after Hanshin-Awaji. Also I suggested that we should consider together what kind of preparation people in Tōhoku need…. Another topic I told them about was researching collective housing in Scandinavia and the concept of living together. I

introduced some overseas examples to them while we were discussing whether this way of living might actually work in Japan. Because the style of family may change, I told them that we need to think of a style whereby we can support others and also be supported by others….

In Kobe, there are lots of 3- and 4-floor condominiums, but people in Tōhoku want to have their own individual houses. In the future I think that it would be good for houses in Tōhoku to be made in a style characteristic of the area using local materials, by local craftsmen….

Okuda (Kyoto University researcher): Likewise, at the time of the Great Hanshin-Awaji Earthquake, the extent to which neighbors and blood relatives such as parents could or could not live together was central to the demise of some prospective housing reconstruction in the Nagata area. Especially, the system for determining if they could move into [public] recovery housing did not always go well. Regarding the topic of *takadai-iten* [高台移転, "relocation to high ground"] in Tōhoku, I heard that there is a trend toward something like collective housing in Kesennuma. I wonder if the local people are aware of these kinds of issues?

Rumi (Machiken staff): Not at all. They don't reject [collective housing], but the land for their *takadai-iten* was finally just determined, so right now they are only thinking of their immediate situation. Henceforth we will continue to support them and give them suggestions such as, "Why don't you build collective housing rather than such-and-such, if you are going to build something anyway." Perhaps, some people may think, "Even if end up alone, I may be able to live without worries." I would like to give them this kind of direction if it is possible. But there are really a lot of people in that area who live with three generations [together], and I am not sure whether they will accept the collective housing style or not. At least I didn't feel that they rejected it. But one thing they all share is that nobody wants to live in an apartment made of concrete.

Komori (Machiken officer): I don't think people will go for [collective housing] if you just offer a suggestion. They need to see more beneficial terms, such as tax reductions or reduced interest rates on loans.

Rumi: In Hyogo Prefecture's case, they provided subsidies for collective hosing projects, so this becomes more of an administrative issue. But I think that there is no progress in an individual case unless they get some kind of benefit by doing it.

Nozaki: Two points, based on everyone's comments. First, how should we capitalize on our experience of the Hanshin-Awaji Earthquake, and how should we convey [those lessons]? Kansai and Tōhoku are different regions. The damages wrought by the disasters are different. What I keep thinking about is process, like what kinds of procedures we followed, etc. At this point, even if discussing things together with residents seems like a roundabout way, that kind of process may be the only way to convey [our experience]. I have been feeling this way more and more lately.

I break into Nozaki's comments to point out that the discussion thus far has featured frequent comparisons of Kobe to Tōhoku, recalling what worked, and what did not, in Kobe's own recovery. As Nozaki observes, the group seems to be wrestling with the relevance of their experience to Tōhoku's circumstances, as well as how to approach communication of specific issues, such as to what extent they should or should not recommend collective housing as a possible solution for reconstructing homes. As Rumi notes, one advantage of collective housing is that elderly residents living by themselves — a likely prospect for many displaced residents of Tōhoku's fishing villages, whose children have moved to distant cities — have regular contact and close social support from their neighbors. Regardless of outcomes or particular recommendations, Nozaki asserts the importance of paying attention to process, and argues for the necessity of "discussing things together with residents," as opposed to pushing specific suggestions or lecturing residents about their own experiences, even if such a deliberative process "seems like a roundabout way" and takes more time to reach a conclusion. As the dialogue proceeds, the Kobe-Tōhoku comparisons continue, although Nozaki now refers back to an earlier moment at this *fukkō juku*, raising an additional matter of concern:

> **Nozaki**: Second, someone mentioned earlier the story of "I am also *hisaisha*." I have felt that many people presume that *hisaisha* are only those who live in temporary housing because their houses were washed away by the tsunami. There has been that assumption. Right now, in many areas in Kesennuma, people whose houses were washed away have been working for their *takadai-iten* association, while people whose houses were okay have been taking over the local residents' association. There has been conflict between those two groups. We started to meet with a residents association two or three months ago, and everyone there said to us, "Even though we did not lose our homes, we are also *hisaisha*. But no one has recognized that." This is why people who support *hisaisha* need to be careful and try to understand those sensitive emotions. It does not matter if someone lost his or her house or not. Even if he did not lose his house, he may have lost his fishing grounds or his workshop. Everyone has been affected by the disaster in some way, so it is important for us to deeply understand in order to support them for the long term.

Nozaki is concerned about the tension that has arisen between different groups of residents in Kesennuma, based on the kind of damages they suffered in the tsunami, especially whether or not their houses were destroyed. It is a social and political minefield that Nozaki and the others conducting activities in Tōhoku must navigate with care and sensitivity.[69] Finally, Komori tries to synthesize the discussion, to articulate broader lessons, and to clarify and reinforce the group's goals and norms:

> **Komori**: What is the difference between Tōhoku and Kobe? In fact, regional characteristics or customs may be different. And it might be that one more difference is the (grandiose-sounding) "level of development:" family life and family relationships are becoming increasingly urbanized. Especially in the Hanshin area the collapse of the old structure of family relationships has become common, or we might say that there is now a new structure. Tōhoku may also become like that. In that case the supply of three-generation residences we just talked about will emerge as a problem.

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69. Q.v., the discussion in Chapter 5 on *kizuna* (togetherness) vs. *bundan* (division).

It's too early to reach a conclusion, and I think we just need to watch carefully. But if things continue developing to the point that there is a really huge gap, indeed it will be impossible [to sustain traditional multigenerational family homes].

Shouldn't *machi-zukuri* be something that supports new ways of living? In times like these, it is necessary to gather the opinions of young people more. By no means should we consider *machi-zukuri* to be something only by or for representatives from Kobe. This means that when we go to Tōhoku we should not talk simply about Kobe's experience. Instead, because Japanese society, the composition of Japanese families, and communities' ways of being seem to be in the process of changing, we should recognize that we need to take in the opinions of young people in order to deal adequately with the new situation. Otherwise, newly built towns will already be obsolete.

[On the question of who is *hisaisha*,] when we visit the *hisaichi* in order to support the people there, the *hisaichi* zone is limited. Some areas are not considered *hisaichi* because they didn't suffer damage directly. The basic concept of this *fukkō-juku* is that we support *hisaichi and hisaisha*. Even in those areas that aren't legally recognized as *hisaichi*, we still support those people as *hisaisha*…. I say that it is wrong to treat people mechanistically as if they're not *hisaisha* just because their area isn't considered *hisaichi*. We members of this *fukkō-juku* should not categorize *hisaisha* mechanistically — for example, only someone who has documentary proof is *hisaisha*. We should recognize that there are many kinds of *hisaichi* and many kinds of *hisaisha*. And also, we should keep in mind that we ourselves may end up becoming *hisaisha* again tomorrow….

The foregoing dialogue shows the PRP experts at the *fukkō-juku* reflexively grappling with a number of interlocking issues. They discuss concrete questions such as specific options for housing reconstruction, as well as broader questions of theory and methodology. They talk about on-the-ground social realities in Tōhoku, such as the tensions between different groups of residents over categories of victimhood, and how such realities may affect their work with the locals. (I will describe the consequences of working in such conditions and attempting to deal with these issues in subsequent chapters, especially Chapter 5.) They question how they themselves should approach

the issue of categorizing Tōhoku's residents — an issue with material consequences, since the experts of the *fukkō-juku receive government funding for the expenses they incur in their ongoing work.* They frequently compare Kobe to Tōhoku, noting differences in demographics, home ownership preferences, family structures and regional culture, while pointing out how both regions are caught up in larger demographic and sociological trends sweeping Japan as a whole. Note, however, that, at least in this particular exchange, they do not make such distinctions at a finer than regional scale, even though (as I will show) there are noticeable cultural variations from town to town, district to district, *within* Tōhoku (and within Kobe, for that matter).

Throughout this discussion, the participants try to hash out which of Kobe's experiences can be applied to the Tōhoku's current situation. At issue, as well, is how precisely to discuss their own experiences and knowledge with residents of Tōhoku, and how to frame their advice. Should they, based on their positions as experienced experts, push for specific options and outcomes such as "collective housing", or should they focus more on guiding the deliberative *process* of *machi-zukuri*? Finally, even the question of what *machi-zukuri* really is, or at least what it is *for*, comes up in the course of discussion. Apparently, for this community of experts, their journey of collective learning continues today, almost two decades after Kobe's earthquake.

The *fukkō-juku* provides a semi-public, performative and somewhat deliberative space that fulfills multiple functions for its organizers, the "old guard" PRP experts and leaders of Machiken, who are currently members of CO-PLAN and former members of the Mizutani Zemi. As the above dialogue demonstrates, it is a place for members to problem-solve, to exchange information, to discuss issues, and to hash out group norms, values, and philosophy. It provides a forum through which personal and

professional links can be forged and strengthened. It performs "face-work"[70] — that is, it puts human faces upon Machiken and upon the otherwise "faceless" institutions whose representatives participate, including government agencies. As the *fukkō-juku* is open to government officials, it provides a visible "deliverable" to demonstrate a return on investment for prefectural and municipal support. Likewise, its being open to journalists and the public provides its participants with a stage upon which to demonstrate their value to ongoing and future recovery efforts, and to remind people of the value of their experience after the Hanshin-Awaji earthquake. In practice, members of the public rarely attend, unless they are involved in volunteer activities in Tōhoku. Those who do attend, as noted above, are asked to comment at the end of each meeting; thus, they are assured the floor for at least a few minutes. Moreover, nearly every meeting is attended by journalists from major daily newspapers, NHK (the national public broadcast company), and other television networks, so each meeting is conducted effectively in the public eye. Thus, the *fukkō-juku* gives Kobe's PRP experts a stage upon which to perform their expertise in front of key audiences of peers, patrons and clients.

Finally, the most important purpose of the *fukkō-juku* may well be its function as a place to consolidate the ongoing training of the next generation of Kobe-based specialists in the PRP-related fields. Komori:

> When we held the first *fukkō-juku* meeting around March 20, 2011, people said that the reason we go to Tōhoku is to show gratitude. We were helped by many people after our disaster and we appreciated it very much. Indeed, we could say that we will help

70. In the sense of Giddens (1991), which differs from Goffman's more famous formulation. Giddens argues (and is hardly alone in this argument) that public trust of "disembedded" institutions is mediated by interpersonal interactions — e.g., one's judgment of a bank's trustworthiness depends crucially upon one's judgment of the trustworthiness of bank employees with whom one personally interacts. I discuss "face-work" in both Giddens's and Goffman's senses as important components of what I call *trust-work* in Chapter 5.

> others because we received help from here and from there — call it reciprocity — but rather than saying that we give back to Tōhoku what we received from Tōhoku, I would rather say that the things we received from people in the past, we return to the people of the future…. The next huge disaster to occur might happen again right here. If that happens in the future, there's a good chance that those people would not be the ones who actually remember Hanshin-Awaji or who actually worked for that event. So who, then, will inherit the legacy of Hanshin-Awaji?
>
> Now, people in their 30s and 40s, who are actually central to the *fukkō-juku*, need to accumulate experience to become the core and to work for the next disaster. That is the purpose of the *fukkō-juku*. That is why I don't think that we are repaying Tōhoku. We are going there to study for the future. Therefore, there is absolutely no need for anyone to thank us. We are investing for the future. This means that Tōhoku is in no way the place where we teach the lessons of Hanshin-Awaji; it is the place for us to learn. We don't go there as *sensei*, we go there as students.
>
> We have asked Kobayashi, Nozaki, Tsuji and others to visit Tōhoku and bring some of the "regular troops" with them. There, we intend to learn something we cannot experience anywhere but the actual site of the disaster. Because we have no money, we request travel expenses from Hyogo Prefecture; on paper, we are dispatched just to support Tōhoku, but it is actually for the future. Someday, those people will be active in the field. We went to Hyogo Prefecture to ask for the subsidy in order to train those people. We study to prepare against the great disaster of the future which may come to western Japan, not just to Hyogo. *That* is why the *fukkō-juku* is different from other volunteer groups.[71]

Komori's concern — "who, then, will inherit the legacy of Hanshin-Awaji?" — demonstrates a reflexive awareness of the necessity to perpetuate this expert community — and their expertise — into a future in which they may once again be called upon in a time of need. One implication is that the regeneration of Kobe's group of experts is good not only for Japan but also for Kobe; there is an implicit interest in maintaining Kobe's position as a hub of disaster recovery expertise.

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71. Komori interview (May 2012).

Through the activities of Kobe-based PRP experts in Tōhoku, coordinated by Machiken and consolidated at the *fukkō-juku*, Kobe's community of experts is working to reconstruct, not only the tsunami-devastated communities of the northeast, but also itself.

2.9: "Japan Inc." planning vs. post-Kobe participatory planning

As a final note on the legacy of Kobe's PRP experts, it is a measure of their success in establishing their own expertise and in promoting their own methods that participatory planning (not only post-disaster) through *machi-zukuri* exploded in popularity throughout Japan in the late 1990s and early 2000s. It is a further measure of their success that other experts working with communities in Tōhoku today evince a similar ethos and employ analogous techniques in their praxis. Thus, participatory planning (including participatory *recovery* planning) in Japan has become a recognizably coherent field — loosely and informally organized around shared principles and goals (e.g., to democratize the planning process and to maximize diverse stakeholder involvement). Kobe's recovery, and the experts who facilitated it, are widely given credit for ushering in the popularity of *machi-zukuri* and participatory methods in general, and for establishing these methods as the preferred *modus operandi* for pursuing post-disaster recovery planning in particular.[72]

At the same time, however, it is important to point out the boundaries of their influence on the Japanese built-environment professions overall. Generally speaking, Japanese planners, architects and engineers operate within four, relatively distinct spheres:

1. academic institutions and NGO's (such as Kobe Machiken) — mandate includes education of built-environment professionals and scholars; typical clients include small businesses, NGO's, and communities
2. small, private firms — typical clients include individuals, small businesses and communities

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72. Hein (2001), Evans (2002); Amakawa interview (February 2012), Takeuchi interview (February 2013).

3. massive design-and-engineering contract corporations — typical domestic clients include large companies and government planning agencies
4. government planning agencies

Participatory planning through *machi-zukuri* is primarily espoused and enacted by scholars and practitioners of the first sphere, and to a lesser degree the second. The third and fourth spheres may effectively be considered a single world unto itself, comprising a major portion of Japan's *doken kokka* (独見国家) or "construction state."[73] As later chapters of this dissertation will show, official planners and government-aligned engineers tend to follow Japan Inc.'s traditional methods of technocratic *toshi-keikaku.* Although they may boast, in public relations materials, of public involvement, while employing the language of "*machi-zukuri*," their "public engagement" practices — e.g., surveys and guided focus groups — differ significantly from those performed by Kobe's PRP experts.

Tōhoku's recovery planning is being conducted at multiple levels, by local communities, facilitated by PRP experts, and by government agencies and their contractors. Thus, while the primary focus of this dissertation is on the local practices of PRP experts from Kobe and the residents with whom they are working, such efforts are only part of Tōhoku's overall recovery planning story, bounded as they are by official planning initiatives and, ultimately, government approval. I discuss these institutional arrangements and their ramifications further in the following chapter.

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73. Cf. McCormack (1995, 2012).

3. "BETWEEN THE LAND AND THE SEA" : CONTEXTUALIZING THE SOCIOTECHNICAL CHANGE OF RECOVERY

> The sea was very much a part of our town, and we lived together with the sea. Our environment was the space between the land and the sea, and that is why it was so rich. But now they are trying to harden it into implacable concrete. I think they drew up such a plan because they don't truly understand this place's culture.... But humans cannot live in the midst of only built things....[1]
>
> Concrete is just a material that makes people complacent. Everyone [here] knows that, but people without experience think disaster prevention has to take the form of something visible. They can get job opportunities or make profits for the companies of concrete, so the authorities pour money into public construction works. I really don't want to destroy our history and culture for such reasons.[2]
>
> — Mayumi Kudō

> Fishermen built their own original culture seashore by seashore. The people of each seashore believed in their own gods. They did not have anything else they could depend on, so they prayed for their safety. They protected their culture through customs and traditions. That is why each village has its own original culture. There are 18 inlets on this single Karakuwa peninsula. Those 18 inlets have 18 villages, each with its own system of beliefs and mores. So when people move their residences to high ground, all 18 cannot go to one place, because they each have their own distinct culture.
>
> — Norio Katō[3]

3.1: Lurching toward 3.11: a short history of fishing villages on the Sanriku coast

The name "Kesennuma" combines the Japanese word *numa* (沼, "marsh") with

1. Kudō interview (March 2013).
2. Kudō interview (October 2012).
3. N. Katō interview (March 2013).

a word from the Emishi language, *kesemoi* ("southernmost port"), an artifact of the region's history. As late as the Heian Period (CE 794-1185), Tōhoku was still a "wild" land inhabited by the indigenous Ainu and Emishi peoples.[4] It was during this era that the Japanese brought the area under their control, through a mix of military conquest, trade and political alliances.[5] The region's rich forestry, fishing and opportunities for trade with the indigenous tribes helped it to quickly become the largest and among the wealthiest domains in Japan. Its urban center of the time, Hiraizumi, now a popular tourist destination near Ichinoseki, some 40 km west of Kesennuma, was once the second largest city in Japan after the imperial capital of Kyoto. Yet the culture and landscape of the Tōhoku region retained its rugged frontier character. Over the ensuing centuries, as the center of Japanese power moved east to Kamakura and then to Edo (later renamed Tokyo), the region's seas, forests, arable lands and mineral wealth were increasingly exploited — and ordered — to feed the voracious resource appetites of the realm's expanding urban capital.[6] If Tōhoku remained a frontier-like region, it became a kind of "internal colony" of the Japanese Empire.[7] To this day, its economy depends upon "exports" to Tokyo, and its resourceful residents are proud of their frontier heritage.[8]

Until the second half of the 20th Century, the inhabitants of the steep valleys and rugged inlets along Tōhoku's Sanriku coast had maintained a similar livelihood and culture for generations. "Sanriku" is the name given to the jagged, sawtooth-like,

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4. On the contested boundaries and ethnic diversity that historically make up the famously "homogeneous" Japan, see, for example, Morris-Suzuki (1998). On the Japanese conquest of the Ainu, see Walker (2006).
5. Totman (2005).
6. Walker (2001a, 2001b).
7. Totman (2005), Akasaka et al (2011).
8. Horinouchi interview (Mar 2012), Baba H. interview (March 2013), Baba Y. interview (May 2012), Katō interview (June 2013), Yoshino interview (May 2013).

mountainous coastline of myriad inlets that extends from northern Miyagi, through Iwate, to the town of Hachinohe in Aomori, the northernmost prefecture of Honshu island. Nestled in many of the small inlets are fishing villages. In the villages of the Karakuwa Peninsula, within the municipality of Kesennuma, where I conducted much of my fieldwork, families lived in large, multigenerational houses. The main, patrilineal line of the family, or *honke* (本家, "main house"), maintained close ties with the other family branches, or *bunke* (分家), and hosted large, extended-family gatherings during festivals. The peninsula is too compact and rugged, with no rivers and insufficient fresh water, to permit the wet rice agriculture upon which most Japanese depended historically, but local residents produced silk, which they traded for rice or cash. Indeed, *Karakuwa* (唐桑) translates as "T'ang mulberry," and the local legend is that the area's first mulberry tree was brought to this area by a ship from T'ang Dynasty China. In addition, residents grew their own fruits and vegetables in small plots. Today, most houses still have their vegetable gardens. In fact, the produce section of the local supermarket, in addition to a small selection of fruit and vegetables, sells seeds.

Fishing, however, has historically been the center of the community's culture and livelihood. Indeed, the name of one village on the peninsula is *Shibitachi* (鮪立): "Tuna-Built." Locals say that, at one time, as many as 70% of the captains of Japan's entire tuna fishing fleet hailed from this single village. Fishing set the social rhythms of the villages, as the women went out en masse to the beach to send off their husbands in the morning and then again to greet them in the evening, helping to haul in the boats, nets and the day's catch. Those fishers who had been particularly successful gave part of their catch to those who had been less fortunate, a practice that continues today.[9] Especially successful families displayed their wealth in a particular way: by

9. Wilhelm (2006).

constructing ever more ornate roofs for their houses. This gave birth to a style of roof for which Karakuwa became famous. Because they grew their own produce and procured their protein directly from the sea, locals rarely needed to purchase food, aside from rice. These were remarkably self-sufficient people. Even into the late 20th Century, Karakuwa fishermen crafted much of their own equipment — nets, boats, fishing rods — from wood and other materials sourced from the local forest.[10]

Only in recent decades had these traditions begun to change, with fishermen relying increasingly upon purchased "high-tech" equipment and less upon local resources or friends and neighbors. In doing so, their work became less social, more solitary. To a certain degree, it also became somewhat less dependent upon embodied skills and tacit knowledge rooted in experience working directly with nature. For example, traditional hoya (sea-squirt) fishing entailed probing the seafloor with a long, flexible rod constructed by the fisherman himself from local plants. "Modern" methods used electronic sensors and synthetic nets. Meanwhile, local forestland became increasingly privatized, and land owners grew less and less inclined to allow access to the materials fishermen traditionally used to make their equipment.[11] At the same time, the *honke-bunke* family structure began slowly to dissolve. Multi-generational households gradually became less common. Families grew more independent, but also more socially isolated from each other.[12]

The fishing industry, including the oyster and *wakame* seaweed aquaculture which accounted for a significant portion of the local economy, not only became more technology-oriented, but also more globalized. By the end of the 20th Century,

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10. Takahashi (2003), Wilhelm (2006).
11. Takahashi (2003).
12. Following Aldrich (2012), we could describe this as a deterioration of "bonding"-type social capital, and we would expect this to reduce the resiliency of the community in the aftermath of a disaster.

Karakuwa fishers were competing in a relatively open market with much cheaper products from other parts of Asia, pressing them to increase production and lower costs. Yet, simultaneously, the local waters around the peninsula began suffering from mysterious environmental contamination, causing die-offs or the ruining of whole "crops" of oysters and the other shellfish raised by the aquaculture fishermen. The problems were traced to runoff from mining, the logging industry, and agriculture, which varied from year to year and altered the chemistry of the coastal waters.[13]

During the heyday of Japan's postwar "economic miracle" and its late-80's "bubble" economy, Karakuwa also enjoyed a robust tourist industry. City-dwellers from Sendai and Tokyo were attracted to the spectacular beauty of the ria coast. Karakuwa Township invested in a number of expensive and questionable projects, such as an amusement park and half a dozen million-dollar high-tech public toilets. However, even during these halcyon days, fishing towns like Kesennuma and Karakuwa never quite fully shared the level of affluence or the material comforts enjoyed by urban centers like Sendai or Tokyo. They remained unambiguously on Japan's internal periphery. As the rest of the country slid into the "lost decade," coastal and rural villages faced significant declines in their economies. Their populations rapidly aged and declined as birth rates fell and young people left, seeking office jobs in the large cities. Tourists stopped coming, and facilities catering to them fell dormant and unused.

Across rural Japan in recent decades, both tax revenue and populations have been declining, and numerous small towns and municipalities have merged through a

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13. A Karakuwa fishing cooperative leader, Shigeatsu Hatakeyama, has become internationally known after responding to the crisis by creating an environmentalist NGO, *Mori wa Umi no Koibito* (森は海の恋人, "The Forest is the Sea's Lover"), which tries to encourage responsible logging, and engages in tree planting and other activities of both practical and symbolic value.

process known as *gappei* (合併). In 2006, Karakuwa Township was absorbed by its neighbor to the west, Kesennuma City. Kesennuma also annexed its southern neighbor Motoyoshi in 2009. Residents of these formerly independent townships nearly universally complain of slower, degraded quality of service from the municipal administration as a result of this process. City officials also admit to the increased difficulty of serving a much larger area with a more diverse population, including some districts unfamiliar to them. Nearly everyone I have asked about the topic acknowledges that *gappei* has exacerbated the challenges of the recovery process.

In short, in half a century these villagers on Japan's periphery endured significant transformations to the social, material and economic foundations of their livelihoods and culture. They became increasingly ensnared in Japan's globalized, techno-industrial, capitalist economy, reaping the benefits that came with being able to sell their fish and other products to urban and global markets, but also suffering the social and environmental costs that accompanied their entanglement. Indeed, their ways of life and social and environmental conditions began increasingly to reflect those of Japan's urban center.

Fig. 3-1: Some houses and vegetable plots in the hilly terrain of Karakuwa. An inlet can be seen in the upper right. Photo by author (October, 2012).

3.2: 3.11 and its aftermath

> The depositional ages inferred from 14C dating suggest that gigantic tsunamis occurred three times during the last 3000 years…. The recurrence interval for a large-scale tsunami is 800 to 1100 years. More than 1100 years have passed since the [CE 869] Jōgan tsunami and, given the reoccurrence interval, the possibility of a large tsunami striking the Sendai plain is high.
> — Minoura et al (2001)[14]

In March of 2012, I was with an international group of graduate students in the town of Kamaishi, Iwate Prefecture, visiting one of the many temporary shopping centers set up along the Sanriku coast over the previous year, when a spry old man rushed out of his shop and ran toward us. He was pointing up a slope to an old gate marking the entrance to the grounds of a Buddhist temple and cemetery. "The water came up to there!" he shouted excitedly. "The water came up to there!"[15] As we engaged him in conversation, he began to tell us his life story, organized around the three times he had witnessed Kamaishi destroyed and the two times that the American navy had visited. He remembered escaping with his mother to a hill overlooking the town when he was four years old, watching as a massive tsunami washed much of it away. This could only have been the Sanriku Earthquake of 1933, which was the last tsunami on this coast powerful enough to devastate seaside communities, killing several thousand people. Kamaishi had been particularly hard-hit. The second time the old man saw much of his hometown destroyed was the first time that the Americans came, as a fleet of Navy warships shelled the town's extensive ironworks and other structures

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14. This report by a team of paleo-geologists based at Tōhoku University, about an overdue "mega-tsunami" with a periodicity of around 1000 years, which had last struck in CE 869, unfortunately did not receive much attention from the public or from policymakers until after March 11, 2011, ten years after it was originally published.
15. Q.v., Fig. 3-2.

in 1945. Finally, when the tsunami came around 3:30 PM on March 11, 2011, it was the third time he witnessed the devastation of his hometown. Within days, the U.S. Navy was back for its second visit, assisting with emergency rescues and providing food, shelter and warm clothing to the locals.

It was on the same trip that I first entered the visitors' center at the tip of the Karakuwa Peninsula in Kesennuma. In addition to general tourist information, the center serves as a tsunami museum. A two-meter long cutaway model of a coastline, complete with blue-dyed water visible through plexiglass, simulates a tsunami when a button is pushed. The majority of the small museum comprises photographs and newspaper clippings depicting numerous tsunamis striking the local coast, as well as literary and artistic depictions, mounted on several walls and dividers. A prominently displayed board of names, dates, and numbers lists Japan's seismic disasters in chronological order, over the past 150 years.[16] The 1933 event is listed as having killed 3064 people, while the 1896 Meiji-Sanriku tsunami is listed as having killed even more people (about 22,000) than the most recent catastrophe. (Other sources agree with these figures.)

The museum and the old man's personal history show just how intimately familiar with destructive earthquakes and tsunamis the people of Tōhoku's Sanriku coast have become. "Sanriku" is the name given to the ria coastline that extends from northern Miyagi, through Iwate, to the town of Hachinohe in Aomori, the northernmost prefecture of Honshu island. *Ria* (or sometimes *rias*) coasts are formed when a mountainous land mass subsides or when the seas rise, allowing the water to gradually inundate the valleys, eventually forming a sawtooth-shaped coastline of jagged inlets. These inlets effectively funnel tsunami waves, focusing their power and

16. Q.v., Fig. 3-3.

leading to shocking run-up heights. The seismic activity of the region is caused by the subduction of the Pacific tectonic plate under the Okhotsk plate (upon which this part of Japan rests) at the Japan Trench, just off Japan's eastern coast.[17] The Japanese archipelago is a classic example of an island chain formed by "back-arc spreading" at such a subduction boundary. This crumples Japan's landform, pushing up its mountains while dragging down other areas such as the Seto Inland Sea (near Kobe) and the Sanriku coast. Geologists call temblors occurring at such subduction boundaries "megathrust earthquakes." Other examples include the subduction zones off the coasts of Chile, Sumatra, Kamchatka, and Alaska, each of which has produced M9.0 or greater, large-tsunami-generating earthquakes since 1952 — together with Tōhoku's earthquake, these are the five most powerful seismic events ever recorded. The same geological forces that create the rugged fjord-like beauty of the Sanriku coast also generate the quakes and tsunamis that periodically devastate its communities.

Thus, in some respects, few people in the world could have been better prepared for what occurred on March 11, 2011. This was demonstrated, for example, by fishermen who saved their boats by sailing out to sea, riding over the tsunami wave before it became dangerous. Or by the widely reported "Kamaishi Miracle," when almost all of the 3000 elementary and junior high school students in Kamaishi orderly enacted their training and successfully evacuated their school, making it to high ground before the tsunami struck. Only five children in the town perished — none of them were at school that day. (Over 1000 adults perished in Kamaishi, out of a total population of about 40,000 people.)

On the other hand, the magnitude of this earthquake and tsunami exceeded

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17. Japan actually rests upon several, interacting plates, including two "triple junctions" — places where three plates meet.

even its antecedent event of CE 869 in the Jōgan era. The quake itself occurred when a 500 km-long section of the subduction zone slipped at 2:46 PM on March 11. The northern portion of Miyagi Prefecture, including the towns of Kesennuma and Minami-Sanriku — about 45 miles west of the epicenter — experienced the highest level of shaking (*shindo* 7) on the Japan Meterological Association's surface intensty scale. All of eastern Honshu and much of Hokkaidō experienced potentially destructive ground motion of *shindo* 5- or greater. The quake was remarkably long, with intense shaking lasting several minutes. Skyscrapers in downtown Osaka, some 400 miles from the epicenter, continued to sway for over 10 minutes. Despite its scale, intensity and duration, the earthquake itself did remarkably little damage, probably owing to the seismic engineering of Japan's buildings and infrastructure.

According to survivors, many people in the towns along Tōhoku's Sanriku coast spent the next 45 minutes seeking out loved ones and trying to escape to an elevation that they believed was safe.[18] In the villages of the Karakuwa Peninsula, for example, residents knew the extent to which the 1933 and 1896 tsunamis had reached — in fact, many had intentionally built their homes just above this line.[19]

About 35-40 minutes after the quake, the water began pulling back from the shore. In Kesennuma, the underwater columns supporting the wharfs and piers became visible for the first time in living memory. Soon even the bases of these columns could be seen.[20] Then the water level began to rise rapidly. Residents who watched the tsunami approach from the sea describe a white wall of water, and behind that, an even larger and more terrifying *black* wall. In fact, " it didn't look like water at

18. Katō interview (February 2013).
19. Horinouchi interview (March 2012).
20. Katō interview (February 2013).

all. It was more like a vast wave of black concrete," said one.[21] Many who thought they had reached a safe elevation were forced to run to even higher ground — if they could. Unfortunately, some were caught on the upper floors of buildings that were still overwhelmed. Witnesses note the eerie and remarkably loud noise; layered on top of the roaring water and the crushing of buildings and vehicles were the sounds of fuel tanks exploding, cables snapping, ships colliding, and a vast sea of debris grinding together and scraping cliff walls.[22] The scars of that scraping are still visible on rock cliff faces.

The tsunami came in three or four waves over a period of about an hour, taking several more hours to subside. Most people report that the second wave was the largest of the set. The height of the water varied, depending on location and local geomorphology. In the Sendai plain, it reached two to four meters. In the Shishiori District of Kesennuma, it was about nine meters — enough to carry the 330-ton fish carrier vessel *Kyōtoku Maru No. 18* some 800 meters inland. In the Shizugawa District of Minami-Sanriku, the 11-meter wave overwhelmed the city's three-story disaster management center, killing about 10 percent of the town's public workforce, most of whom had attempted to escape by climbing to the roof. In Onagawa, Miyagi Prefecture, I visited a hospital perched on a 15-meter high cliff overlooking the harbor; the tsunami had nearly reached the ceiling of the hospital's first floor, or about 17 meters in height.

A tsunami's power is not only a function of its height, however. It is also a horizontally conveyed hydraulic wave of immense energy. The Kamaishi Tsunami Protection Breakwater, a massive concrete structure that had taken three decades and USD $1.5 billion of central government funds to construct — considered the world's

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21. Arakawa interview (March 2013).
22. Katō interview (February 2013), Arakawa interview (March 2013).

deepest breakwater[23] — was pulverized by this wave.[24] All along the coast, seawalls and breakwaters intended to protect citizens and property were overtopped or smashed to pieces. Floodgates at the mouths of streams, designed to prevent the tsunami from climbing up the streambeds, failed with few exceptions.[25]

In Otsuchi, Iwate, the first wave destroyed the gate mechanism; the second wave overtopped the structure, killing eight firemen who were desperately trying to close the gate manually.[26] In some towns, such as Tarō, Iwate, entire districts had been built and populated only after seawalls had been constructed following the 1933 tsunami, leading developers to consider these areas safe;[27] such districts were destroyed. In Tarō, where white lines painted on the face of a cliff mark the 10- and 15-meter heights of the 1933 and 1896 tsunamis, respectively, residents lived behind a system of 10-meter high walls. Now they will have to paint a third line, at 17 meters.

In all, 18,577 people perished or disappeared on March 11, 2011, including 10,848 in Miyagi, 5842 in Iwate, and 1817 in Fukushima Prefecture.[28] Nearly two years later, 321,000 people were still considered "evacuees" by the national Reconstruction Agency.[29] Damaged buildings included 129,000 "totally collapsed," 267,000 "half-collapsed," and 734,000 "partially damaged" structures. In addition, 29 railways, 45 dikes, 116 bridges and 4200 roads were damaged or destroyed, including JR's Sanriku train line. Thousands of boats and aquaculture platforms were lost,

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23. Glenday (2012).
24. Despite widespread criticism, Japan's central government has announced that it will rebuild this breakwater.
25. Notable exceptions included the 14-meter seawall protecting the Onagawa Nuclear Power Plant and the 15-meter seawall at Fudai, Iwate.
26. Kobayashi interview (March 2012). Q.v. Fig. 3-9.
27. Smits (2011).
28. Except where noted elsewhere, the source for the figures in this paragraph is the National Police Agency of Japan (2013).
29. Reconstruction Agency (2013).

devastating the fishing industry upon which the region depends economically. Estimates of total economic damage vary from USD $178 billion[30] to USD $235 billion.[31]

30. ibid.

31. World Bank (2011).

Fig. 3-2: The temporary shopping center in Kamaishi, with the Buddhist temple gate beyond. (Photo by author, March 2012.)

明治以降の大地震大津波

死者・不明者20名以上の震災（計33回）

年　月　日	震災名称又は地域	マグニチュード	死者・不明者
明治 5年 3月14日	浜田震災（島根）	7.1	600名以上
22年 7月28日	熊本市	6.3	20名
24年10月28日	濃尾地震	8.0	7,273名
27年 6月20日	東京湾北部	7.0	31名
27年10月22日	庄内地震	7.0	726名
● 29年 6月15日	明治三陸大津波	8.5	約22,000名
29年 8月31日	陸羽地震	7.2	209名
42年 8月14日	姉川地震（滋賀）	6.8	41名
大正 3年 1月12日	桜島（鹿児島）	7.1	35名
3年 3月15日	秋田仙北地震	7.1	94名
11年12月 8日	千々石湾（長崎）	6.9	26名
12年 9月 1日	関東大震災	7.9	142,807名
14年 5月23日	北但馬地震	6.8	428名
昭和 2年 3月 7日	北丹後地震	7.3	2,925名
5年11月26日	北伊豆地震	7.3	272名
● 8年 3月 3日	昭和三陸大津波	8.1	3,064名
14年 5月 1日	男鹿地震	6.8	27名

年　月　日	震災名称又は地域	マグニチュード	死者・不明者
昭和18年 9月10日	鳥取地震	7.2	1,083名
19年12月 7日	東南海地震	7.9	998名
20年 1月13日	三河地震（愛知）	6.8	1,961名
21年12月21日	南海地震	8.0	1,330名
23年 6月28日	福井地震	7.1	3,769名
27年 3月 4日	十勝沖地震	8.2	33名
35年 5月24日	チリ地震津波	8.5	142名
39年 6月16日	新潟地震	7.5	26名
43年 5月16日	1968年十勝沖地震	7.9	52名
49年 5月 9日	伊豆半島沖地震	6.9	38名
53年 1月14日	伊豆大島近海地震	7.0	25名
53年 6月12日	宮城県沖地震	7.4	28名
58年 5月26日	日本海中部地震	7.7	104名
59年 9月14日	長野県西部地震	6.8	29名
平成 5年 7月12日	北海道南西沖地震	7.8	230名
7年 1月17日	阪神・淡路大震災	7.2	5,500名余
16年10月23日	新潟県中越地震	6.8	68名
20年 6月14日	岩手・宮城内陸地震	7.2	

栗原・奥州 震度6強

Fig 3-3: Chronological list of Japan's seismic disasters since the Meiji Era, displayed on a board at the tsunami museum in the Karakuwa visitors' center. By columns, the list shows the date (by Japanese era), name, seismic magnitude, and death toll. (Photo by author, March 2012.)

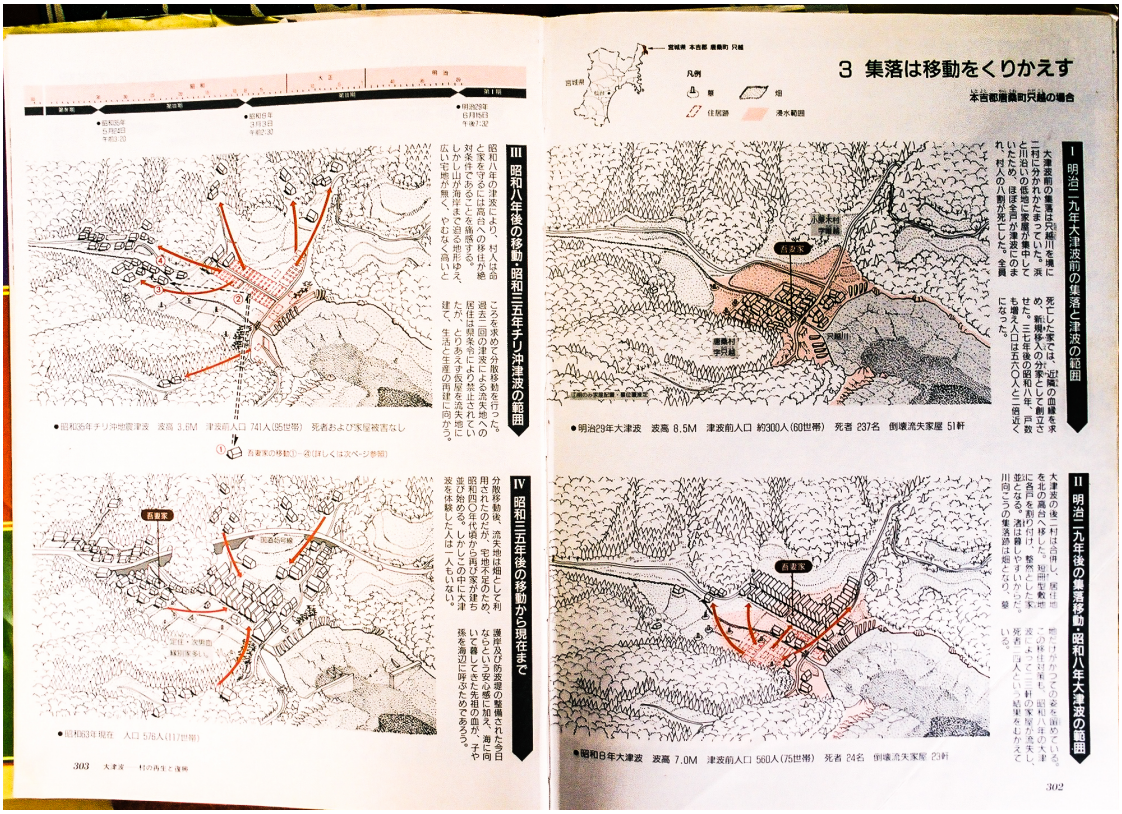

Fig. 3-4: One of my informants who lives in Karakuwa showed me this history book that documents multiple times that a local district rebuilt itself following destructive tsunamis.[32] The right side shows the village before and after the 1896 Meiji-Sanriku tsunami. The left side shows resettlements following the1933 and 1960 tsunamis (the latter having been caused by the Great Chile Earthquake, which killed 142 people in Japan — q.v. Fig. 3-2). (Photo by author, March 2013.)

32. N. Katō interview (March 2013). The village shown is, in fact, Tadakoshi District, which features prominently in this and subsequent chapters of this dissertation.

Fig. 3-5: Damage in Onagawa one year after the tsunami. I took this photo while standing in the 15-meter-high parking lot of a hospital. I still would have been entirely under the water on March 11, 2011. The building in the foreground was tossed onto its side; the right-facing wall is actually the roof. Photo by author (March 2012).

Fig. 3-6: Damage in Rikuzen-Takata one year after the tsunami. The first four floors are heavily damaged. This building stands several hundred meters from the water and its foundation is a few meters above sea level. The strange shapes hovering in the sky are reflections in the window of the car from which this was taken. Photo by author (March 2012).

Fig. 3-7: Damage in Minami-Sanriku one year after the tsunami: a concrete building frame, a car on top (deposited by the tsunami), in the midst of a field of bare foundations. Photo by author (March 2012).

Fig 3-8: Debris was sorted into piles, many of which remained one year after the tsunami, like this pile of cars in the Shishiori District of Kesennuma. Photo by author (February 2012).

Fig. 3-9: The floodgate in Otsuchi, where eight firefighters perished after the gate closing machinery failed and the structure was overtopped while they struggled to close it manually. Photo by author (March 2012).

Fig. 3-10: A smaller floodgate, in Tadakoshi District, Karakuwa. The tsunami went over and through the structure. Photo by author (February 2012).

3.3: Dramatis institutionae: key actors in Tōhoku's recovery

Unsurprisingly, given the scale of the destruction and the complexity of reviving an entire region, Tōhoku's recovery is a national project. Individuals and organizations from across Japanese society are involved. In order to provide some basic context for the reader, this section provides a brief guide to the key institutional actors and their respective recovery-related activities.

Although rooted in a constitution written by American legal scholars, Japan's government is a parliamentary system, with three main levels of government: the central (national) government, prefectures (numbering 47 in total), and municipalities. Disaster recovery efforts are guided by a set of national laws, such as the Basic Act on Disaster Management of 1961 (*Saigai taisaku kihon hō*) and the Act on Support for Reconstructing the Livelihoods of Disaster Victims (*Hisaisha seikatsu saiken shien hō*), passed in 1998 as a response to the widely perceived need for greater "livelihood" support for victims of the Kobe earthquake. These laws describe the responsibilities of the central (national) government and affected prefectures and municipalities in responding to a disaster. The primary role of the central government is to provide financial and other support to the prefectures. The prefectural governments are supposed to take the lead in managing the overall response, including coordinating the needs of local municipalities with the resources provided by the central government and the prefectures themselves. The prefectures are also responsible for formulating reconstruction plans. Municipal administrations are tasked to "take care of victims, distribute aid materials, assess the damage of each household, and carry out financial support procedures to put people's lives back on track."[33]

The Fukushima nuclear disaster and the scale of destruction more generally —

33. Kimura (2011), p. 69.

including the loss of substantial numbers of government workers in affected municipalities — were such that the central government needed to take a stronger leadership role in response and in guiding recovery than perhaps envisioned in the existing legal framework. Some of that has been directed specifically to the management of the nuclear crisis in Fukushima; here I will only describe the broader recovery efforts.

The Diet, Japan's legislature, has budgeted funding for recovery projects through several bills, currently a total of about 25 trillion yen (250 billion USD).[34] Projects include debris cleanup, public and private reconstruction, and grants for businesses. According to NHK, Japan's public broadcasting organization, over one quarter of disbursed funds have been spent outside of the disaster zone, as far away as Okinawa. Soon after it took power in December 2012, the administration of Shinzo Abe said that it would stop such disbursements.

About 11 months after the disaster, the Cabinet Office of Japan (the nation's executive) set up the national Reconstruction Agency (復興庁, *fukkō chō*), which is intended to be a "one-stop shop" for government entities involved in the recovery, including prefectures and municipalities, as well as other agencies of the national government. Its primary function is to oversee allocation of the recovery funds. The Reconstruction Agency itself comprises about 330 members drawn from each of the other executive agencies. An official of Hyōgo Prefecture informed me that each agency has a distinctive culture and work style, so conditions within the Reconstruction Agency are likely to be somewhat chaotic as individual members figure out how to work with each other. The Reconstruction Agency wields three tools to facilitate recovery. First, it has designated Special Zones for Reconstruction (SZR's)

34. Reconstruction Agency (2013).

throughout eastern Japan, where tax breaks and regulatory easements are intended to stimulate business activities. Second, it can authorize exceptions to additional regulations in special cases, when requested. Third, it provides grants of two major types: "business acceleration" grants for stimulating local industry and "national project" grants provided to local governments for certain classes of reconstruction projects. There are eight such classes, which the Reconstruction Agency lists as follows:[35]

1. Road projects
2. Land readjustment projects
3. Collective residential relocation to high ground for disaster risk reduction
4. School facilities development projects
5. Earthquake resistance reinforcement for hospitals
6. "Eco-friendly" water purification projects
7. Agricultural area development projects
8. Fishery village development projects

Grants are of course subject to approval. For example, if a municipal government applies for a residential relocation grant for a particular district, Reconstruction Agency officials determine whether and how much funding to provide based on the ratio of requested funds to number of households involved in the relocation. They assume that local governments have performed, or will perform, due diligence in assembling the proposal — for example, to confirm the technical feasibility of the proposed project. The grant approval process would thus seem to be a missed opportunity for the national government to enforce accountability in the recovery

35. Reconstruction Agency (2013).

process. For example, the reconstruction agency could use a rubric for assessing whether or not the proposed plan had been devised with the approval and participation of local residents. However, by basing approval solely upon a simple cost-per-unit quantitative formula, the agency has abstained from questions of participation or representation.[36] Indeed, even with these eight, seemingly broad project categories, the reconstruction agency has already determined a great deal of how the recovery will take shape by designating such categories at all, as I discuss in more detail in following chapters.

Another central government agency with a major role to play in the recovery is the Urban Renaissance Agency, vernacularly known as "UR."[37] This agency was formerly called the Japan Housing Corporation, when it played a key role during the postwar years of the "economic miracle" by providing public housing for Japan's burgeoning population. When that population grew less slowly and began to age along with the nation's postwar infrastructure, the agency changed its name and shifted its focus to "urban revitalization." Taglines used in its current marketing materials include "The power to revitalize cities," and "Linking a city's past to its future." UR identifies the following "four fields we devote our energies to":[38]

1. "Urban Renaissance: Promoting urban renewal in cooperation with private businesses and regional public institutions."
2. "Living Environment: Utilizing and revitalizing housing stock. Conducting appropriate maintenance management."
3. "Suburban Environment: Promoting a rich natural environment and safe, comfortable new suburban housing."

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36. Interview with officials at the Sendai Bureau of the RA, 2013/2/28.
37. Its name is often given in official documents and websites as "UR都市機構," using the English acronym; the Japanese characters, *toshi-kikō,* mean "City Organization."
38. The UR corporate profile brochure, English version, p. 4.

4. "Disaster Redevelopment: strengthening disaster readiness and recovery."

In Tōhoku, UR has deployed over 311 employees, mainly engineers, to 18 municipalities, primarily in Miyagi and Iwate prefectures, where they are working on the construction of over 2100 new multi-unit residential structures, including 730 in Kesennuma.[39]

The Japan International Cooperation Agency (JICA; rhymes with "Leica"), similar to USAID, usually provides funding and other resources for development projects in Japan's former Asian colonies, as well as in South Asia, Africa and South America.[40] However, they have been involved in the recovery through ostensibly educational projects that bring in international volunteers, who are to return to their home countries with recovery and development skills, as well as a deepened appreciation for Japan.

The Development Bank of Japan (DBJ; tagline: "Applying financial expertise to design the future") has also set aside some funding streams to aid economic re-development of the private sector in Tōhoku.

The earthquake and tsunami affected a total of around 20 prefectures, but the three most significantly damaged were Iwate, Miyagi and Fukushima. Taking a cue from a strategy employed by China after the 2008 Sichuan Earthquake, these prefectures have been paired with unaffected partner prefectures, with whom they exchange information, manpower, and other resources. Miyagi Prefecture, for example, is paired with Hyōgo Prefecture, of which Kobe is the seat. There is also an exchange of municipal officials. At the town or city halls of municipalities along the

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39. UR brochure on recovery planning support activities, May 2012, page 2.
40. Historically many of these development projects have been led or carried out by Japanese companies.

Sanriku coast, one can find a number of officials wearing their jumper suits with pins and embroidered patches from a variety of towns in Hyōgo and elsewhere. In order to see the recovery through, the workload on government officials — especially prefectural and municipal officials — is overwhelming. Exacerbating the situation is the fact that many towns lost a number of their public workers in the tsunami. The town of Minami-Sanriku, in particular, lost about 10% of its public workforce. Thus, the exchange program with other locations not only brings money and expertise, but also functioning bodies.

In addition to governmental actors and their contractors, an array of NGOs, private firms, and educational institutions — as well as prominent individuals — from all over Japan are involved in Tōhoku's recovery. Some, like the Kobe *Machi-zukuri* Research Institute, are focused specifically on recovery planning and working in concert with local groups, with some government recognition and support. Others are independent volunteer organizations focused on clearing debris (now mostly but not entirely complete) or on *kokoro keh-ah* ("*kokoro* care"), where *kokoro* (心) can be translated "heart," "mind," or "spirit". Organizations like Kobe's "Valentine Team" help facilitate social and community-building activities, including group arts and crafts projects for residents of temporary housing facilities. Some of these craft projects bring income to the residents, through sales of their products. Typically, these are elderly women who engage in knitting and other activities, through which they not only make products to sell but also strengthen social ties and enjoy each other's company. In addition, private consultants, such as Shōgoro Hagiwara from Kobe, provide advice to local companies for expanding their businesses. Also, a number of large corporations have stepped into the marketplace void cleared out by the tsunami, reestablishing commercial services in the affected areas more quickly, in many cases, than local businesses could have done.

Most neighborhoods in Japan, including many of the devastated districts in Tōhoku, have a *jichikai* (自治会) or *chōnaikai* (町内会), usually translated as "neighborhood associations" or "residents associations." Traditionally dominated by senior or otherwise prominent male residents, these groups organize annual festivals, enforce local norms, and help distribute responsibilities for such tasks as cleaning and maintaining "garbage stations." In some cases the *jichikai* exists alongside other groups, including *fujinkai* (婦人会, women's social clubs, literally "wives' associations"), *rōjinkai* (老人会, seniors' associations) and *machi-zukuri kyōgikai* (まちづくり協議会, "community-making associations"), which focus on local planning initiatives. There are also local industry groups; Japanese fishing communities generally have a Fishery Cooperative Association (漁業協同組合, *gyogyō-kyōdō-kumiai*) which helps to maintain the boundaries of local fishing territories and enforce fishing rights. There may be substantial overlap in the memberships of different groups, and the jurisdictions of each group may be drawn at different scales. For example, my own neighborhood in Kobe, Shirakawadai Block 7 in Suma Ward, has its own *fujinkai* but shares its *jichikai* with Block 6 (and there is no *machi-zukuri* group). Tension between groups is also not uncommon. In one district of the Karakuwa peninsula, for example, the respective leaders of the local *jichikai* and *machi-zukuri* carried on a feud that, for a time, threatened the progress of the district's collective relocation initiative. In that case, a PRP expert from Kobe was able to broker a truce and secure consensus between the two leaders and groups.

That brokered truce is just one example of how PRP experts are helping locals with their recovery planning projects through a number of different mechanisms and institutions. Some are working with local organizations, some directly with governments, while others are funded through universities or through NGOs. Most of the PRP experts working with local communities are affiliated with universities or non-

profit institutes in Kantō, Kansai or Tōhoku.[41] Note that all of Tōhoku's major universities are located inland, away from the devastated coastal area, so very few experts are from the *hisaichi* ("disaster zone").

As I discuss in subsequent chapters, unlike in Kobe's recovery, there has been no system for recruiting, vetting, or assigning experts to different districts or projects. According to the Reconstruction Agency, there are 24 municipalities comprising 245 districts currently going through participatory recovery planning processes, with some districts engaging in multiple projects. Some experts are working with multiple districts, while many districts are working with multiple experts.

Nearly all prefectures and municipalities had completed initial recovery plans by the end of 2011, and they continue to flesh out the details of these plans while reconstruction work is ongoing. Government planning departments do not have the capacity to cope with this kind of workload. Many do not have the in-house expertise. Therefore, they have worked closely with UR as well as large engineering firms such as Pacific Consultants (taglines: "We add value for a bright future" and "Comprehensive planning capability for building the future"), Kokusai Kōgyō ("*Machi-zukuri* for the future"), and Hasshu ("Who is it that is making the *"machi?"*).[42]

Finally, it is important to emphasize that recovery planning is being carried out by multiple organizations at multiple levels and scales, loosely organized. At the local, neighborhood level, PRP experts facilitate *machi-zukuri* meetings for participatory recovery planning at the neighborhood level. At least in the case of Kesennuma, these local PRP initiatives are officially recognized by the municipal and prefectural

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41. Kantō is the megalopolitan area comprising Tokyo, Yokohama, and environs, while Kansai is the region of Japan that includes the megalopolis of Kobe-Osaka-Kyoto.
42. Note the theme prominent in the taglines of the organizations mentioned thus far: planning/designing/making/building "the future."

governments, which sometimes send representatives to confer with residents and consulting PRP experts at *machi-zukuri* meetings. The experts often meet with officials at City Hall or elsewhere, in order to keep each other apprised of issues and developments and, occasionally, to seek agreement on proposals. However, local PRP initiatives are not instigated by government, and their outcomes are not guaranteed government acceptance. Indeed, municipal and prefectural governments are ultimately responsible for official recovery plans, although as has been indicated above, these plans are subject to fiscal and other constraints provided by the national Reconstruction Agency, the Diet and the Cabinet Office of Japan. Local planning can and does influence official plans, as I will show, but to some degree it also competes with municipal and prefectural plans that have been compiled with little regard to the input or desires of local residents. Aspects of local plans that substantially contravene official plans receive no government support and, consequently, are unlikely to see implementation. Thus, PRP experts who facilitate local *machi-zukuri* face a daunting challenge: to enable planning at the local level which substantially reflects the community's will and to help shepherd these plans to implementation through the official support of government agencies (and, practically speaking, their contractors) even when such plans may well conflict with those same agencies' own plans.

Fig. 3-11: A temporary housing structure in Kesennuma. This building contains four living units, divided from left to right. Each unit has two small multi-use rooms, a kitchen, and a bathroom, and may house up to four family members. These structures, designed by engineers in Tokyo, have little insulation, such that in the cold Tōhoku winter, moisture tends to condense on the ceiling and drip onto the interior and inhabitants below. External water pipes have to be retrofitted with insulation as well. The *genkan* or doorway thresholds, where residents and visitors don and remove their shoes (visible jutting from the building), an important part of any Japanese house, have also been retrofitted onto these units, as they were not in the original design. Photo by author (February 2012).

Fig. 3-12: A temporary housing facility in Kesennuma. Photo by author (February 2012).

3.4: Recovery, or *coup de grâce?*

> Why has the plan been done in this way? We were never informed of anything. It's wrong. I think it is wrong that people who will live here in the future are not given a place for discussing the plan of the town. I think the new town should become a place where we want to live, even better than the former town. We have that kind of opportunity now, so it makes me extremely sad not to be given a place for discussion. I sometimes feel that this is a plan for destroying the town. People will leave.
> — Tadamori Arakawa[43]

The initial recovery plans compiled by the municipal government of Kesennuma, in late 2011 boasted three prominent features for future disaster risk reduction: (1) a larger, redesigned seawall; (2) mass residential relocation to high ground; and (3) a zoning scheme based on elevation and proximity to water.[44] By the end of 2011, residential relocation was also explicitly listed as a project category to be funded by monies appropriated for the new national Reconstruction Agency (復興庁).[45] In other words, largely before any significant participatory planning processes had begun, government at the local and national levels had already decided to make several fundamental changes to the built environments of towns and villages in the disaster zone.

By early 2012, residents of the Tadakoshi district of the Karakuwa Peninsula in Kesennuma City had begun participatory planning processes involving expert consultants from Kobe, and then later also city officials and the city's engineering consultants. They met once or twice per month. Most of the local participants were over 60 years old, and the average age of the group was probably close to 70. Some were retired. Many had children who had moved away to become lawyers and

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43. Arakawa interview, March 12, 2013.
44. Kesennuma City (2011).
45. Reconstruction Agency (2011).

salarymen in Tokyo, Sendai, or other cities. Of course, some villagers had passed away in the tsunami, while others had moved away to other towns afterwards.

During the early stage of the planning process, these residents expressed profound reservations about both seawalls and relocation to high ground. One resident summed up the issue when he said, "When we say the word *seikatsu* (生活, 'livelihood'), what that really means is *umi* (海, 'the sea')."[46] Plans to enhance safety by moving away from the water or building ever more gargantuan seawalls merely separate the community from the source of its identity, and yet cannot guarantee people's safety. In fact, some residents argued the opposite. People who live here understand from a young age that tsunami follow powerful earthquakes, and that *ōtsunami* (大津波, "great tsunami") especially are preceded by an acute withdrawal of the water from the shore. The more pronounced the withdrawal, the more dangerous the tsunami. Therefore, once alerted by an earthquake that a tsunami may come, being able to see the sea allows people to judge both the timing and the power of the tsunami. In such a situation, people knew either to run to high ground or to take their boats far enough out to sea that the tsunami would roll under them. Meanwhile, on March 11, massive and extravagantly expensive tsunami defenses, such as the famed Kamaishi breakwater, had been decisively overwhelmed. Some coastal towns such as Tarō, heavily damaged by past tsunami (especially in 1933 and 1896), had largely redeveloped their lowland areas only after such defenses had been erected, only to be even more thoroughly devastated than before. Aware of this context, residents argued that large seawalls would accomplish little beyond merely encouraging an exaggerated sense of safety. Rather, they argued that the indigenous knowledge of tsunami risk embedded in their local culture — born from deep historical experience and, for some,

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46. Tadakoshi meeting (February 2012). Note also that the title of Kesennuma City's official recovery plan is "Living With the Sea" (海と生きる, *Umi to Ikiru*).

personal experience — could be more effective at saving lives than concrete walls.

Despite these objections and the clear preference of most residents not to build a large seawall, its inevitability never appeared to be seriously in question. The government had already expressed its intention to build such structures. Everyone knew that group relocation to high ground was a preferred strategy of the Japanese government, and that the national Reconstruction Agency had already allocated significant funds for that purpose. The prefectural and municipal governments would follow suit without question. Opposing relocation would therefore entail a steep uphill battle for any local groups.

At a later stage in the planning process, Miyagi Prefecture presented specific plans for a redesigned seawall to the residents of Tadakoshi. Like most towns and villages on the Sanriku Coast of Tōhoku, Tadakoshi is built upon a *hama* (浜), generally translated as "beach" but in this area often equated to the entire zone of flat land near the seashore of a narrow ria valley. Typical of such valleys, a small stream runs down the length of the *hama* to the sea. Most of these streams in Tōhoku have been protected by floodgates intended to prevent tsunami from surging uphill along the river course. So many of these structures failed on March 11, 2011 that officials have largely abandoned them as a defensive measure against large tsunami. Instead, current plans call for seawalls to be extended into a system of levees along the river banks. The cross-sectional shape of these structures is roughly triangular; the backside of the embankment slopes gradually downward to ground level. Thus, an 11-meter high seawall or levee may be more than 40 meters deep, back to front. But Tadakoshi's *hama* may be only the size of a few football fields; the footprint of a levee, two elevated highways, and a large seawall would use as much as a third of the village's entire area. Moreover, the sloping backsides of the seawall and a parallel highway would overlap, forming a concrete "V" upon which nothing could be built. In meetings, a few

residents wondered aloud if that "V" could be filled in to make a broad, flat space, upon which a community center or a *banya* (番屋, fishermen's lodge) could be constructed overlooking the sea, but nothing came of this sensible suggestion, at least initially. Residents were concerned that their village was about to be inundated by yet another tsunami — this time one made of concrete.

In addition to the risk introduced by being unable to see the sea, residents pointed out further risks posed by plans for larger seawalls and levees and group relocation to high ground. For example, a stream bounded by sheer, tall, concrete levees would incur a much greater risk of accidental drownings, were someone to fall into the flowing water. Not only would such walls be difficult to grab and scale for someone in the water, but they would also make it more difficult for would-be rescuers. Several residents said that some years before, a child had been rescued after falling into the stream, and they worried that no one would be able to rescue the next person to fall in.

Residents also wondered aloud whether there weren't unseen or unconsidered risks of living on top of a wooded hill, such as landslides or fire. The government's plans were fundamentally targeted at reducing the risk of lost lives and property due to tsunami — and *only* tsunami. Other risks seemed not to be considered, and formal risk assessments of the new plans were apparently not being carried out, or at least not communicated to the public.

Eventually, however, residents accepted both group relocation and the system of amplified levees — that is, an organized and determined resistance never materialized. When asked why, some said "*shikata ga nai kara*" — "because there is no (other) way" — while others said, "*mou kimachattan da*" — "it turns out that it has already been decided." Residents clearly felt that the government would push these measures through, regardless of local wishes. If they were to exert any influence over

the shape of their local built environment, it would have to be within the parameters set by bureaucrats in Tokyo, Sendai, and Kesennuma City Hall.

Exactly how and why Japanese governments made these decisions is beyond the scope of this project, but actors' perspectives on this question are relevant. When asked to speculate, actors generally gave two answers.[47] First, they surmised that officials felt genuine responsibility to protect citizens' lives, and feared the possibility that, if they did not take the obvious steps of building stronger defenses and moving populations to high ground and if another tsunami were then to strike and deal more death and damage, that they would bear ethical responsibility, as well as political backlash. Therefore, even if there were arguments that resources would be better spent elsewhere, or even if local residents balked at the measures, political leaders could not in good conscience decline them. My interviews of officials and observations of them in meetings — including municipal officials from Kesennuma and Minami-Sanriku, Miyagi and Hyōgo Prefecture officials, and some officials with the national Reconstruction Agency and the Cabinet Office of Japan — corroborate, or at least do not contradict, these conjectures. Second, some informants pointed out that "Japan Inc." has enjoyed a cozy relationship with the construction lobby at least since the end of World War II. Public works construction helped to stimulate Japan's postwar economy and spark its so-called "economic miracle" in the 1950s, 60s and 70s. During the so-called "Lost Decade" of the 1990s and early 2000s, Japanese administrations repeatedly tried to stimulate the economy through massive debt-financed construction projects. In short, actors often cited the *doken kokka* (独見国家) or "construction state," and speculated that the Japanese government was simply institutionally incapable of

47. A number of interviews and casual conversations yielded variations on the following remarks; e.g., Arakawa interview (March 2013), Kannō interview (March 2013), Yoshino interview (May 2013).

innovative solutions.[48] Thus, participatory recovery planning in Japan is fundamentally constrained by parameters set by the government, and such parameters are rather predictably narrow.

At any rate, after more than a year, Tadakoshi's relocation plan has nearly been finalized. Assuming that land ownership details can be worked out,[49] it would move residents to a hill near the sea, overlooking their old village. There will be no traditional roofs, no large *honke* houses for extended family gatherings, and no attached plots for vegetables. (The residents are trying to negotiate with a landowner to use his land for raising vegetables, but that land is on the other side of a major highway from the new subdivision, difficult to access for most residents, many of whom are over 70 years old.) Houses will be small and packed closely together, much more like urban residences. Although not far, residents will have to descend a steep access road and drive down the highway a short distance to the waterfront, a very different experience from simply walking a few steps to the beach.

Another challenge the locals face in their recovery is the fact that large companies based in Tokyo or Sendai have been moving in to the spaces in local economies cleared out by the tsunami. The national Reconstruction Agency provides funding to start new businesses in the area regardless of whether they are locally owned operations or branches of a national chain. Municipal governments, desperate for speedy economic revival, welcome all comers. Yet, it is those companies based outside of the disaster zone which have the resources to establish a local foothold, while locally owned businesses — smaller and battered by the tsunami — struggle to reestablish themselves. Local business owners are worried that the long-term effect of large-scale non-local investment will be, as one said to me, "like a huge vacuum

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48. Cf. McCormack (1995, 2002, 2012).

49. This is by no means a safe assumption, yet one that current designs are predicated upon.

sucking all the money out of our economy."[50]

Corporations are not the only non-local entities benefiting from the recovery process. Recovery experts from Kobe, Tokyo and elsewhere may be motivated by the best of intentions, but they also are using the ongoing recovery process as a training ground for the reproduction of their ranks. In addition, they receive a small amount of funding by governments, universities and NGOs to support their activities. They are able to solidify or augment their professional reputations through these activities, and some will probably be able to procure government contracts for planning and rebuilding work. Some residents have told me of doubts or suspicions about the motivations of expert consultants: "For them, this is a business. They can get money."[51] Thus, regardless of the extent to which any of these experts are actually motivated by such crass concerns, the mere potential of a future business proposition may affect residents' trust, a topic that I will discuss in detail in Chapter 5.

When considered in light of social and historical context, the "recovery" might reasonably be interpreted, not just as a chance for revival, but also as a possible instrument for hastening a decades-long process of social and cultural decline, possibly delivering a *coup de grâce* to the old social order in small fishing villages like Tadakoshi. Such an observation is consistent with some disaster recovery research which has indicated that post-disaster recovery tends to exacerbate pre-disaster trends, particularly with regard to economics and population movements. Notably, for example, Edgington shows that those districts within Kobe which had been declining in population and economic vibrance prior to the earthquake saw these declines accelerate afterwards, while districts that had been on the upswing continued their

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50. Katō interview (February 2013).
51. Hatakeyama interview (April 2012).

growth at a faster pace.[52] Similarly, in post-Katrina New Orleans, relatively economically depressed neighborhoods have generally struggled to recover as quickly as those that had been more economically vibrant. In both Kobe and especially in New Orleans, the socio-economic circumstances of residents and districts maps onto racial and, to some extent, age demographics (as well as physical elevation — a crucial determinant of vulnerability to cataclysms such as floods, storm surges and tsunamis).[53]

On the other hand, recently scholars have argued that a community's "social capital" or "community capacity" can play at least as great a role in shaping its recovery as its socioeconomic condition or demographic marginality. Yasui, for example, showed that the Mano neighborhood in Kobe, with its long history of community engagement and *machi-zukuri* activities, was able to withstand the shocks of the earthquake and to recover more quickly and effectively than the geographically contiguous and socioeconomically and demographically similar Mikura district, which lacked these traditions.[54] Indeed, residents of Mano became heroes of one of the more famous incidents associated with the catastrophe, when they quickly formed a "bucket brigade" on the day of the earthquake, successfully dousing fires before the flames could grow and consume the district — while large portions of neighboring areas were razed. Likewise, through his comparative analysis of five major disasters within the past century (including both Kobe and Hurricane Katrina), Aldrich argues forcefully that "social capital," in its various forms, is the single greatest determinant of a community's disaster resilience, or lack thereof.[55]

Thus, it is too early to say definitively whether or not recovery in the fishing

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52. Edgington (2010).
53. Campanella (2007).
54. Yasui (2007).
55. Aldrich (2012).

villages and other coastal towns of Tōhoku will come to be seen as a "final blow" to their old social orders and ways of life, or to say conclusively which communities will fare better than others based on advantages in socioeconomic resources or "social capital." However, studies of recoveries from past disasters provide clues for the kinds of "factors" to which scholars should pay attention as the recovery in Tōhoku's communities proceeds through the following years (and, likely, decades).

That said, there are a number of significant differences between the PRP processes in Tōhoku and Kobe. For example, whereas Kobe had an organized system for pairing districts with planners, architects, engineers, lawyers, and other registered experts from an official "expert bank" derived from Kobayashi's pre-existing CO-PLAN network, Kesennuma and other towns on the Sanriku coast had no system in place for ensuring that each district would have access to expert help. Indeed, when asked, two years after the tsunami, if all districts were working with expert consultants, a city official told me, "*most* of them,"[56] implying that perhaps one or two were not. As the narrative below will show, the majority of Kesennuma's districts working with expert consultants entered such arrangements on an *ad hoc*, haphazard basis, through mundane social connections.[57]

In addition, whereas nearly all of the consultants working with *machi-zukuri* groups in Kesennuma (and most of Tōhoku) are from outside the Sanriku region and a majority are from outside Tōhoku, most of the experts assisting districts in Kobe were local — often earthquake victims themselves working with their own neighbors for the recovery of their own districts. Thus, in Kobe the primary distinction between the experts and the non-experts was just that — the status of "expertise." In Tōhoku,

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56. Kannō interview (March 2013).

57. This is an example of the importance of "bridging" social capital for bringing vital resources into a recovering community. Such informal social resources become even more important in the absence of formal, institutional support. Cf. Aldrich (2012).

however, there is the additional distinction of local vs. non-local status.

One consequence of Tōhoku's remoteness is that the time and money required for experts to visit the area from Kobe, or even from Tokyo, limits how often they can meet with the locals. As mentioned in Chapter 2, *machi-zukuri* meetings in Kobe districts were often held two or three times per week. In Tōhoku the norm is once or twice per month. Progress feels glacially slow in Tōhoku.

Deeper consequences of Tōhoku's distance include the differences in knowledge and ways of knowing between non-local experts and local non-experts. Questions about the nature of those differences, whether and how they can be closed, are of course a central concern of this dissertation, and of the next chapter in particular.

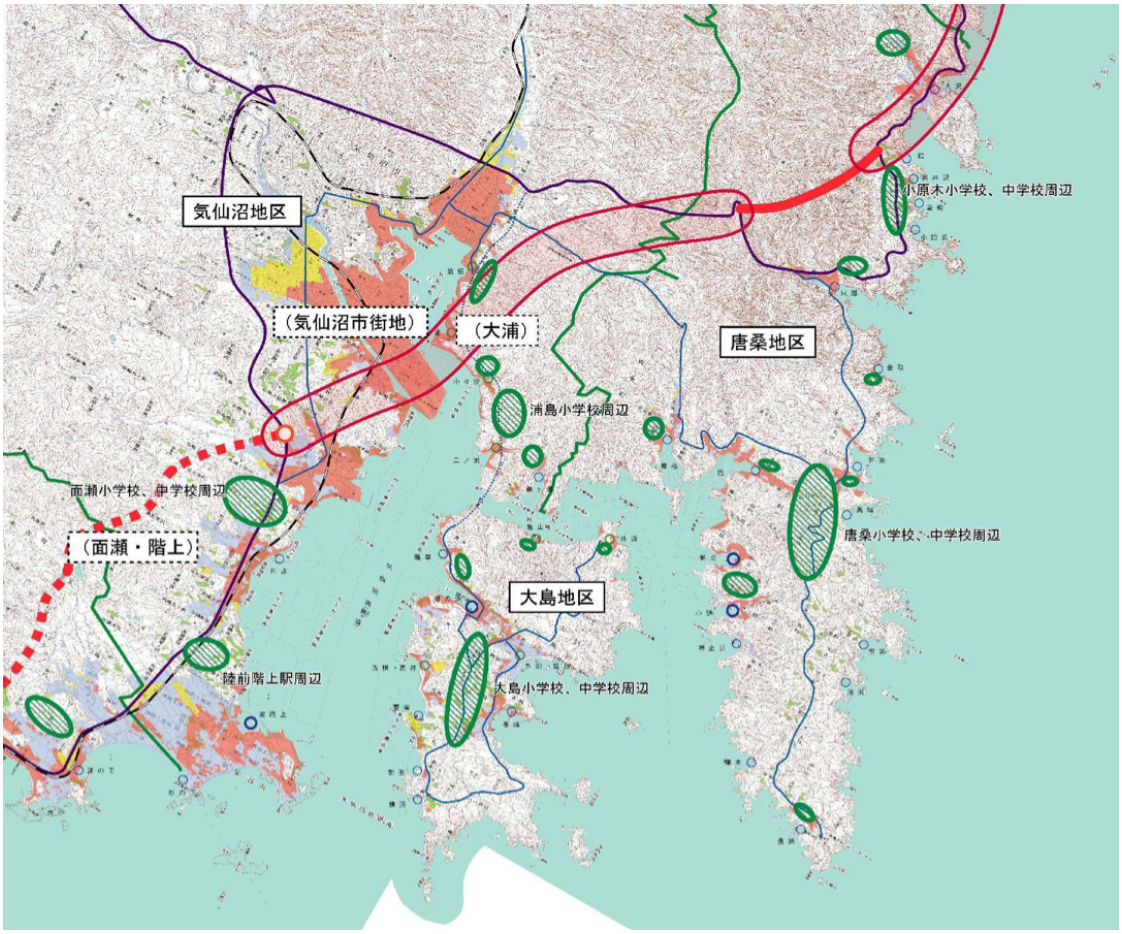

Fig. 3-13: Overview map of Kesennuma's recovery plan. The large peninsula in the lower right is Karakuwa. The ovals mark *takadai-iten* targets — the areas of high ground to which *hisaisha* from low-lying areas are planning to move. Source: Kesennuma City (2012).

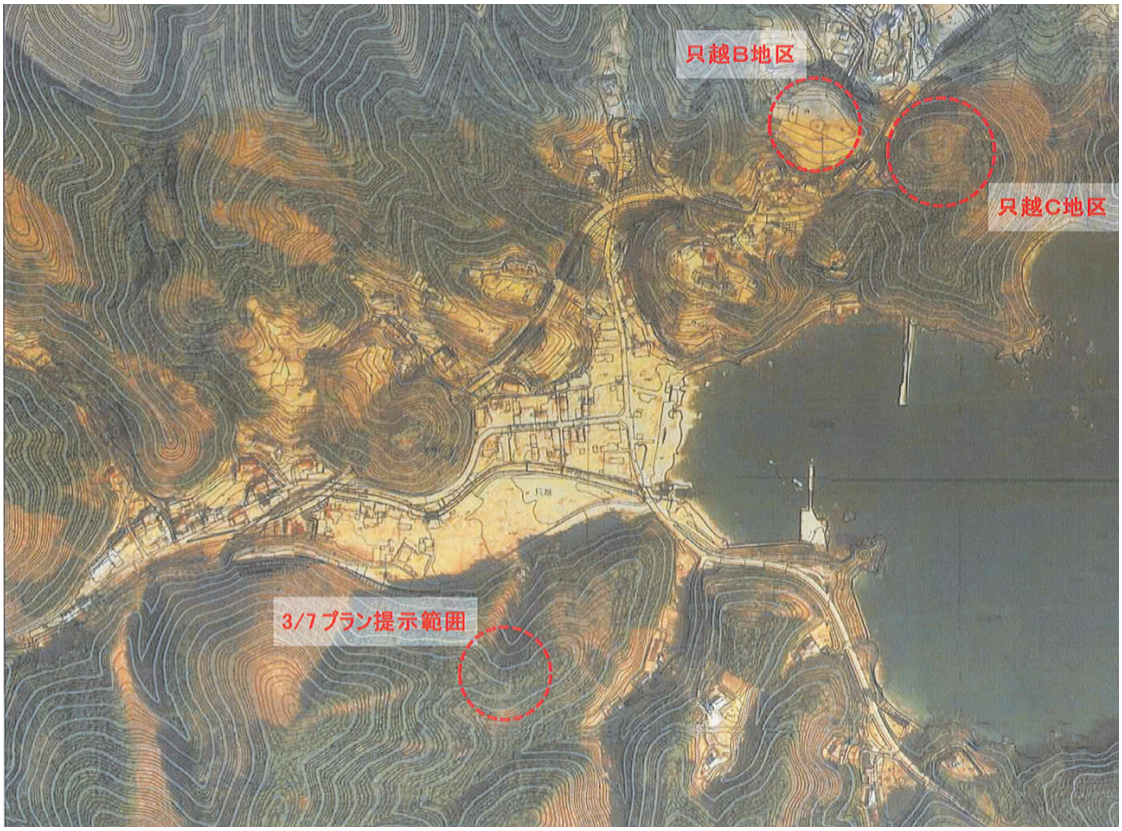

Fig. 3-14: Topographical map of the Tadakoshi Disrict, showing the roughly triangular *hama* in the center with roads (note T-shaped intersection towards the water), stream (the wavy snake in the center of the *hama*), and three possible locations for *takadai-iten*. Source: Kesennuma City (2012).

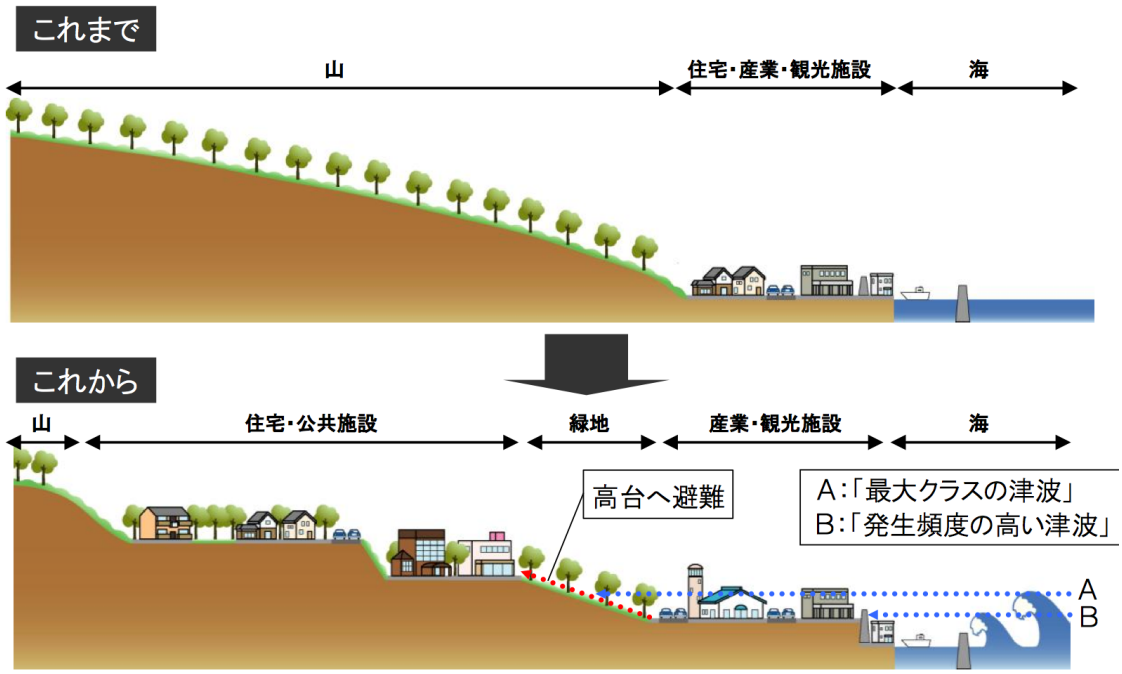

Fig. 3-15: Elevation diagram of basic recovery plan incorporating measures for resisting the impact of future tsunamis, with "before" on top and "after" on the bottom. This particular diagram comes from the recovery plan of Minami-Sanriku; other towns on the Sanriku coast have similar plans. It is based on a two-tier disaster risk reduction (DRR) model corresponding with the waves labeled "A" and "B " in the lower right. The letter "B" denotes a large, "1-in-100-year" tsunami. The combination of a breakwater, a higher seawall, and raised land are intended to provide 100% protection from such an event. (Note the removal of material from the mountain to provide infill for part of the low-lying area, and the relatively taller seawall.) The letter "A" denotes a much larger tsunami, on the order of what struck on March 11, 2011. In such an event, people in the commercial and industrial zones near the water would flee up evacuation routes toward schools, hospitals, and residences at higher elevations. Note the amount of construction involved for a small town with an aging and declining population; further note that the "after" town is represented as being considerably larger and more developed than the "before" town. Source: Minami-Sanriku Town (2011).

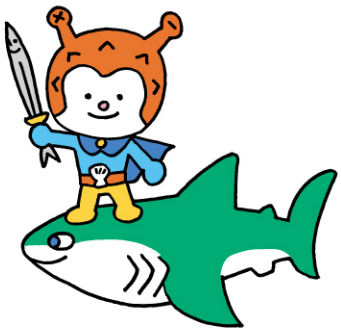

Fig. 3-16: The Twitter avatar of Kesennuma City, featuring the city's official mascot, *Hoya Bōya*, "the child of the sea," riding upon a shark. (The city has historically processed a huge quantity of shark fins, and features a large "shark museum," which was heavily damaged by the tsunami.) The character's design emphasizes the city's connection to the sea: his headpiece is a *hoya* or sea-squirt; his belt buckle is a scallop; and he wields a silver fish as if it were a sword. Source: Twitter (accessed November 2013).

4: LOCALS, EXPERTS AND KNOWLEDGES IN TŌHOKU

> What my theory is now, regarding the relationship between experts and residents, is that residents become experts, and experts become residents…. What I mean is, this process — residents becoming experts and experts becoming residents — this is actually *machi-zukuri* itself. That is my assertion.
> — Osamu Tsukihashi[1]

4.1: PRP in Karakuwa: collaborative strategies for recovering townscapes and lifescapes

Several months after the tsunami, many of the survivors who had lost their homes were living in temporary housing. In some cases, such as the village of Osawa, residents from the same district were clustered together at the same temporary housing facility. In other cases, such as the neighboring village of Tadakoshi, they were scattered to several facilities, each of which also housed residents from other villages. Around this time, post-disaster recovery experts from around Japan — planners, engineers, architects, economists, psychologists, and others — began to enter the disaster zone, offering their help. Initially, the Osawa district appeared to receive more attention than others, including Tadakoshi. Among the residents of Tadakoshi, who also needed and wanted outside support, some were envious of their neighbors in Osawa. They surmised that Osawa attracted more attention from prospective expert-consultants because its residents were about twice as numerous and clustered together in a single location. This caused some tensions between the populations of these districts.

In fact, the reason for Osawa's apparent "head start" was far more prosaic than presumed by the residents of Tadakoshi. A professor from Yokohama City University

1. Tsukihashi interview (April 2013).

had come to Karakuwa to check on a former student from Osawa, after hearing that the student's home had been washed away by the tsunami. While there, he met Mitsuyoshi Kumagai, a local community leader who had been wondering how to go about planning the recovery of the district. When asked about the community's plans for group relocation, Kumagai replied that he and his neighbors had no knowledge of such things, nor any idea about what to do for the future of the village. Through their discussions, the professor agreed to help the district as an expert consultant, eventually bringing in a team of other experts and students from several different universities.[2]

Mr. Neguchi, a local store owner and respected former head of the Residents Association in Tadakoshi, worried that his own village was "falling behind" Osawa, and probably other districts as well.[3] No experts had come calling. The municipal government in Kesennuma was distant and preoccupied, and had offered no help. He was wondering how Tadakoshi could "catch up," and he decided to take matters into his own hands. He compiled a survey of questions for his neighbors, intended to be a starting point to gather basic information about their current situation as well as their plans and hopes for the future. Meanwhile, he had relocated his family to an apartment half an hour away, and had his hands full with the reconstruction of his own shop, which had suffered extensive but partial damage. He felt that Tadakoshi needed help from experts *a la* Osawa, and he was thinking about asking his son, a university student, to try to find a suitable person on the faculty of his son's school.

Shortly before that, a member of CO-PLAN and Kobe Machiken named

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2. Yoshida interview (April 2012), Kumagai interview (March 2013), Tsukihashi interview (April 2013).
3. Details from the following account of Tadakoshi's PRP activities and the involvement of Kobe-based PRP experts have been compiled from field notes and interviews with a number of actors, most notably Nozaki (numerous interviews and conversations), Takasago (February 2013), Neguchi (March 2013), Kameya (March 2013), Hatakeyama (March 2013).

Harumi Takasago had entered Neguchi's shop, asking for help with a flat tire.[4] The two had exchanged pleasantries and business cards. Takasago had been sent by Hyōgo Prefecture to work with the Volunteer Station, a local organization that coordinated volunteer work in Kesennuma. Later, on November 22, 2011, just when Neguchi was thinking about talking to his son, Takasago came back to his shop with Nozaki, a fellow CO-PLAN member and one of Kobe Machiken's leaders, who asked Neguchi whether he knew anything about the local community that had been mentioned in the Kesennuma newspaper for having developed their own recovery planning survey. When Neguchi informed them that, in fact, that was his survey and his own community of Tadakoshi, they offered their services as advisors. They arranged a meeting with Mr. Kameya, the head of Tadakoshi's Residents' Association, on December 6. At that meeting, the relationship between the residents of Tadakoshi and the experts from Kobe was made official, pending the consent of the residents. That consent was provided at the next meeting, with a large group of displaced residents, on December 17. Specifically, the agreement was for Nozaki's team of experts to assist with the *takadai-iten* project focused solely on relocating residences to high ground, rather than the broader ambit of a *machi-zukuri* organization aimed at reshaping other aspects of the community. In fact, to this day Tadakoshi district technically does not have a *machi-zukuri* group, only a Residents Association and the *takadai-iten* association. Nevertheless, Nozaki has largely proceeded as if he were facilitating a *machi-zukuri kyōgikai*. Although the initiative is not, strictly speaking, "machi-zukuri" because its official ambit is *takadai-iten* only, rather than recovery planning for the entire "machi" or village,[5] Nozaki has conducted the project largely as if it were indeed *machi-zukuri*.

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4. As described in Chapter 2, CO-PLAN and Kobe Machiken (short for Kobe *Machi-zukuri* Research Institute) are NGO's and institutional homes for Kobe's PRP experts, both founded by Ikuo Kobayashi.
5. Neguchi interview (March 2013), Kameya interview (March 2013).

Therefore, for the analytical purposes of this dissertation I will also treat it as if it were a *machi-zukuri* project.

On January 21, 2012, displaced residents of Tadakoshi held their first recovery planning meeting with Nozaki's group of experts at a community center near the temporary housing facility where many of the residents were now living.[6] Using Neguchi's questionnaire as a starting point, Nozaki handed out a survey to the assembled residents. Most of the questions were designed to gather basic information about demographics, family status, jobs, and so forth. Some questions were oriented toward peoples' desires and intentions for the recovery, such as, "Do you intend to stay in Tadakoshi? Do you intend to move to another area in Karakuwa or Kesennuma, or go elsewhere?" Other questions were more open-ended, such as, "What kind of *machi* (町, "town" or "community") do you want to live in? Do you want Tadakoshi to be like it was before?"[7]

As discussed in Chapter 3, the government had already decided that they would need to move their residences to higher ground, the explicit *raison d'être* of this group. At the January meeting they discussed possible locations for building their new homes. In Japan, and especially on the Sanriku coast, identifying undeveloped parcels of land suitable for building residences is a non-trivial task. Much of the land is mountainous and prohibitively expensive or otherwise unsuitable for development. Of the remaining space, much is privately owned. In both Kobe and Tōhoku, a major challenge faced by the government in setting up temporary housing facilities was simply finding the space to put them. In both cases, rows of the temporary structures were set up in school yards and public parks. In Onagawa, for example, south of

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6. Nozaki interview (February 2012), *Fukkō juku* notes (February 2012), Neguchi interview (March 2013).
7. Nozaki interview (February 2012), Neguchi interview (March 2013).

Kesennuma, temporary houses fill the playing field of the local high school's baseball park.[8] Most of the current relocation plans throughout the region involve "cutting" mountaintops, an expensive procedure as measured in money, manpower, and machinery, as well as time — all things in short supply in post-disaster and post-industrial Japan.[9] Despite the relative lack of options, the group was able to identify a particular parcel of land that seemed promising — elevated enough to be relatively safe, close enough to feel pretty much like home. The only catch was that the parcel in question spanned a patchwork of ownership. Thus, the city would need to secure the agreement of all of the current landowners. After the meeting, Nozaki took the group's suggestion to Kesennuma City Hall as a proposal. It was subsequently up to the city to negotiate with the landowners.

While waiting for the city's response, the group held another meeting on February 26.[10] By that time, Neguchi had collected all of the survey responses and passed them to Nozaki for collation and analysis. At the meeting, printouts of the results, including tables and color graphs, were handed out. The group went over the results together and discussed them, focusing especially upon the more open-ended questions.[11] Residents clearly and forcefully expressed their concerns about the risks and negative implications for their way of life due to relocation to high ground and, especially, larger seawalls. This was the discussion during which one resident equated local lifestyle with the sea itself, as described in Chapter 3.

This meeting was conducted at the same community center as before, with

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8. Q.v. Fig. 4-7.
9. Q.v. the elevation-cutaway diagram in Fig. 3-15.
10. The following account is based on meeting notes (February, 2012), which include photographs and audio recordings as well as live notes, and on post-meeting debriefing discussions with Nozaki and other members of the "Kobe Machiken team."
11. Q.v. Fig 4-1, in which residents can be seen poring over the survey report at this meeting.

about 25 or 30 residents participating. Most of the participants were over 60 years old, with many over 70. Nozaki's team consisted of himself, two other "old guard" PRP experts from CO-PLAN and Machiken (Takasago and Tsuji), two younger PRP experts from Machiken, two legal consultants, and a prominent architect — all from Kobe. In addition, journalists from NHK television, the *Kobe Shinbun* newspaper, and the *Mainichi Shinbun* newspaper attended, as well as Michiyo and myself. There was a whiteboard at the front of the room and a U-shaped arrangement of tables at the front and sides, with a few chairs toward the back and numerous *zabuton* (座布団, "sitting-futon") cushions scattered upon the floor in the middle of the room.[12] Nozaki's team sat on *zabutons* behind the tables at the front and sides of the room, with several local leaders also sitting behind the tables. This group faced the majority of residents who were clustered towards the back and in the center of the room. The men sat around the edges, many up on Western-style chairs, while most of the women sat on the cushions in the center. A large space remained in the front-center portion of the room, where there were many unused *zabutons,* perhaps reflecting the still-incipient and tentative nature of the relationship between the experts and the residents. (At later meetings, this physical distance dissolved.) In short, the physical arrangement of the room reflected social and political relationships, with the experts and leaders at the front, the local residents toward the back, and the men sitting on chairs higher than the women. On the other hand, the women, who comprised about half of the group, were more vocal than the men, freely expressing their opinions, while the men remained relatively taciturn.

On this weekend in late February 2012, Nozaki's team participated in several *machi-zukuri* meetings at several different districts around Kesennuma. The

12. Q.v. Fig. 4-1.

assertiveness of Tadakoshi's women stood out especially in comparison to other areas, particularly the Ozaki District, a larger and more populous community near the center of Kesennuma. At the Ozaki meeting, the room's arrangement was similar to that at Tadakoshi, except that there were twice as many residents, with a much smaller proportion of women.[13] Those women who did attend refused to speak even when encouraged by Nozaki, Tsuji and others to express their opinions. Later, residents of yet another district told us that Tadakoshi and Ozaki are famous for exactly these gender dynamics.[14] The local theory is that the fishermen's wives of Tadakoshi, because they are left to manage the household alone while their husbands spend so much time out on the sea, become exceptionally self-sufficient. Whatever the reason, it was apparent that there were obvious cultural variations, and differences in gender roles and expectations, even from district to district within Kesennuma.

When asked why meeting rooms were arranged as they were at Tadakoshi and Ozaki, members of Nozaki's expert team suggested that such concerns were trivial, as long as the process was truly participatory and the contents of the meetings were acceptable.[15] However, other PRP experts, such as those working with Osawa District, disagreed somewhat on this point. They indicated that seating arrangements were an integral part of the choreography of the proceedings, depending upon who was participating and what were the objectives for that particular meeting.[16] Noted one: "People feel more comfortable to contribute to discussions in smaller groups at the round tables."[17]

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13. Ozaki meeting notes (February 2012), "Kobe team" post-meeting discussion. Q.v. Fig. 4-4 for a picture of Nozaki speaking at the Ozaki meeting.
14. Minami-Saichikawara meeting notes (February 2012).
15. Post-meeting discussion with Nozaki, Tsuji, Takasago (February 2012).
16. Tsukihashi interview (April 2012).
17. Yoshida interview (April 2012).

One of the Osawa meetings that I attended, for example, took place in a school gymnasium and featured a number of round tables surrounding a low platform in the center, with a large projection screen at the end of the gym.[18] The population of this district is about double that of Tadakoshi, and the consulting expert team is also larger, with professors of architecture and planning from Yokohama City University, Kobe University, and Tōhoku University of Architecture and Design, as well as a small platoon of these professors' students. The meeting began with slick videos and PowerPoint presentations by a professor and some students, recapping the results of the previous meeting and setting up the day's tasks. The residents then gathered around the platform in the center, upon which was displayed a white, detailed three-dimensional model of the district as it existed before the tsunami, constructed from foam-core materials, about 2 by 3 meters in size. The professors discussed the importance of remembering what their village had been like in the past, before beginning to plan what shape it would take in the future. Next, the residents sat at the round tables, about 12 per table, with one professor or senior student also at each table. At one table sat only women, at another sat only men, while both men and women sat at the remaining tables. (Generally, women at the mixed-gender tables seemed much less vocal than those at the all-female table.) As with Tadakoshi, most participants were over 60 or 70 years old, although there were also several in their 30s and 40s. The expert team handed out promotional materials and a questionnaire about the kinds of architectural details the residents wanted in their future homes. As the experts facilitated the discussion, junior students hovered about, jotting notes and recording comments. I will return to Osawa below, but my immediate point is that the seating arrangements and the procedures for conducting PRP meetings do vary from

18. Osawa meeting notes (April 2012).

district to district, facilitating expert to facilitating expert.

After Tadakoshi's meeting in February, the "Kobe team" and some of the residents had dinner together at a restaurant owned by one of the residents.[19] In addition to consuming copious amounts of locally sourced sushi, sashimi and other foods, the participants engaged heartily in *nominikeishon*, a bilingual portmanteau composed of the Japanese word for "drinking" (飲み, *nomi*) and the English word "communication." Far from an ancillary activity, the evening's festivities went a long way to strengthening the social bonds between the locals and the occasional visitors from Kobe — an example of what I call *trust-work*, which I describe in more detail in Chapter 5.

As I learned from attending numerous meetings over 18 months, most of the PRP meetings run by Nozaki's group followed a particular template. Local leaders would open with a brief (or sometimes not so brief) introduction or speech, and then the experts would give presentations — for example, regarding the results of the survey or a meeting with local officials. Next there would be free discussion, followed by a more structured discussion in which each person in the room was asked to express an opinion on the preceding proceedings. Finally, arrangements would be made for the next meeting.

Throughout this process, Nozaki's younger expert assistants would be taking notes — Ms. Kobayashi jotting in her notebook and taking pictures, Mr. Asami writing notes on the whiteboard. Asami tried to capture everything that anyone said throughout the meeting, writing encapsulated summaries of each statement on the board. Periodically, everyone would stop while Asami reviewed the comments. The most important such review took place towards the end of the meeting after each

19. Field notes (March 2012).

participant had been asked for his or her opinion.[20] The experts' objectives were to ensure that all participants had at least one chance to express themselves, and that these opinions and feelings would be captured without fail.[21] Asami and the other experts argued that it was important for the participants to see that their own opinions and feelings had been heard and recognized by the experts and by the group as a whole. Furthermore, Asami noted that often a participant would remark that she was worried that she was the only one with such an opinion, but was relieved to see that she was not alone. In fact, Asami's notes would be left on the board until the next meeting the following month. At the beginning of the next meeting, Asami would once again review the notes from the previous meeting to ensure continuity and to catch up anyone who had missed it.

By the time the residents of Tadakoshi met again in late March 2012, more than a year after the tsunami, they had received word from the city that their proposed site for relocation had been rejected. At the time, there was no explanation. However, later it was revealed that just one of the current landowners had declined to sell, single-handedly vetoing the entire proposal.[22]

It was back to the drawing board for the displaced residents. On March 25, they met again, this time in the tiny community meeting room within their temporary housing facility.[23] City officials also packed into the room with the residents and experts, and presented several alternative parcels of land which they had tentatively surveyed and identified as developable. At this meeting, several residents asked whether the new sites were not vulnerable to other kinds of disasters such as landslides

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20. Asami presentation and interview (October 2012).
21. Nozaki interview (February 2012), Kobayashi interview (February 2012), Asami presentation and interview (October 2012).
22. Neguchi interview (March 2013).
23. Tadakoshi meeting notes (March 2012).

or fires. Officials responded by saying that no location would be entirely risk-free, but that city engineers would certainly assay the properties in terms of the suitability of the soil and other such concerns. After some discussion, the residents chose one of the three parcels proposed for development by the officials.[24] A small group immediately went to take a look at the proposed space, and found no objections. On April 10, Nozaki's team visited the principal landowner of the parcel in question. Although they did not get a signed agreement, the owner verbally agreed in principle to selling his land.[25]

In the first week of May, Nozaki's team held individual hearings with Tadakoshi's residents, meeting one household or couple at a time.[26] Within this more private context, they were able to discuss again many of the questions asked on the survey, as well as to get to know some of the individual residents a little better. Although the information gathered did not differ significantly from group discussions, it gave Nozaki a deeper appreciation for the struggles that many of these people were enduring. For example, whereas before they had always been able to raise vegetables and catch fish for food, it was only now, at precisely the moment that they found themselves without jobs and income, that they were forced to purchase their food with cash.[27] In addition, Nozaki emphasized the fact that couples were able to show their disagreement with each other; in particular, wives were able to express their disagreement with their husbands, something they were generally reluctant to do in

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24. Q.v. Fig. 3-14, which shows the three proposed sites for relocation. The residents chose the site on the upper right (northeast) of the figure.
25. Nozaki interview (April 2012), *Fukkō-Juku* notes (May 2012), Neguchi interview (March 2013).
26. Nozaki interview (May 2012), *Fukkō-Juku* notes (May 2012), Neguchi interview (March 2013).
27. Kikuta interview (April 2012).

the public context of a group meeting with their neighbors.[28] In general, people were able to speak more freely about their concerns. The residents themselves reported that these hearings helped to reassure them that Nozaki and his team genuinely cared about them and their specific situations.[29] In short, beyond providing additional data or new information, like *nomi-nication* the hearings functioned as trust-work, deepening mutual trust between experts and residents.

Based on information collected in the hearings as well as in the earlier survey, Nozaki compiled a series of simple questions regarding the kinds of housing conditions that people desired for their future homes.[30] For example, how much space and how many rooms did they want? How important was a view of the sea? Did they want to stay close to their previous neighbors? Their current neighbors in the temporary housing facility? Did they prefer public or private housing? Separate homes or townhouses? Etc. The group went through these questions at the next meeting on May 27.[31]

In addition, Nozaki presented the concept of collective housing, which had been an experimental solution to recovery housing in Kobe, favored by some CO-PLAN members.[32] In this model, two, three, or four houses share a common area such as a kitchen, lounge and courtyard, where the families socialize and make and eat meals together. In the first several years after the Kobe earthquake, this kind of housing arrangement was a kind of craze among some planners and architects, and many such structures were built. At first, there were plenty of enthusiastic residents,

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28. Thus Nozaki appeared to have learned a lesson from Komori, as mentioned in Chapter 2.
29. Kikuta interview (April 2012), Neguchi interview (March 2013), Kameya interview (March 2013).
30. Nozaki interview (April 2012), *Fukkō Juku* notes (May 2012).
31. Tadakoshi meeting notes (May 2012).
32. *Kinmokusei* (1999), Otani (2010), Maly & Shiozaki (2012), Amakawa interview (February 2012), Nozaki interview (April 2012).

happy to have a new home after several years in cramped temporary housing. An advantage of the collective housing model is its efficient usage of space, which is especially attractive to residents whose total land area will shrink 10% or 20% through land readjustment. However within two or three years in Kobe, many of these arrangements were failing, as people were rapidly tiring of constant contact with their neighbors and the inability, for example, to have dinner privately and quietly with their own families.[33] At the meeting in Tadakoshi, residents listened politely to Nozaki's presentation, but were unimpressed and uninterested in the idea of collective housing. This was, after all, a place where people had lived in huge, spacious houses separated from each other by vegetable plots and — especially by Japanese standards — considerable space. Indeed, during the discussions, it emerged that the most likely target size for the future home plots of Tadakoshi's residents was about 100 *tsubo* (坪), or about 330m². There were grumbles and expressions of surprise at this news. The locals were shocked and disappointed at what they considered to be clearly inadequate space for long-term human habitation. The Kobe contingent was equally shocked that the locals considered 100 *tsubo* to be small. By Kobe standards, that would be an extremely large plot of land, fit for a huge house.[34] After the meeting, the Kobe group discussed the 100 *tsubo* issue with amazement.

Later, one resident commented to me that this particular meeting in May of 2012 seemed to reveal a cultural knowledge gap between the locals and the experts from Kobe: "When I saw that presentation about collective housing, I thought, these guys just didn't understand our ways and our culture."[35] To Nozaki's credit, however,

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33. Amakawa interview (February 2012). The Great Hanshin-Awaji Earthquake Museum features an exhibit that tells the story of the experiment in collective housing.
34. According to the Ministry of Internal Affairs and Communications, the floor area of the average dwelling in Japan is about 29 *tsubo* or 95 m².
35. Hatakeyama interview (March 2013).

he took the polite but cool reception to heart and dialed back his pressure on the topic of collective housing (although we saw in Chapter 2 that the discussion was carried back to Kobe's *Fukkō Juku*). Furthermore, from this meeting forward, Nozaki's team demonstrated more understanding of locals' desires for spacious homes. For example, some months later, once the land for the new residential subdivision had been identified, they worked with Miyagi prefectural planners and contractors, as well as the residents, to ensure that the sizes of private home plots did not get reduced further.[36]

At the next meeting on June 17, residents learned that the city had officially approved their choice of land for their relocation, although there still was no official sale or contract with the current landowner.[37] Also at this meeting, representatives of the Miyagi Prefecture Dept. of Civil Engineering came to present a proposal for gigantic seawalls, elevated roadways, and massively constructed levees along the banks of Tadakoshi's stream. This was the original version of the plan described in Chapter 3, which concerned residents because of the scale of the structures. However, they did not object strenuously at this meeting, but rather appeared to acquiesce to the plans as the will of the government.

On July 22nd, the experts from Kobe organized a very different kind of activity from the usual meeting. This time, the group performed *machi-aruki* (まち歩き, "town walking").[38] That is, they visited their old *hama*, which, with the exception of Neguchi's reconstructed general store, was now almost entirely leveled and cleared of debris, and walked around, pointing out places that had mattered to them. The group from Kobe asked questions like, "What was this?" "What was in that place?" and "Where did you

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36. Private plots in the most recent plan remain at 100 *tsubo*, although public housing plots are specified as just 50 *tsubo* each.
37. *Fukkō Juku* notes (July 2012), Nozaki interview (August 2012).
38. Nozaki interview (August 2012), *Fukkō Juku* notes (August 2012), Neguchi interview (March 2013), Kameya interview (March 2013).

live?" The residents effectively reconstructed their old *machi* out of the fabric of memory. The *machi* they conjured did not merely comprise physical structures and technological infrastructure, but also social relationships and the rhythms of daily life — in the words of one recovery expert, not just a landscape full of rocks and trees or a townscape full of buildings, but a *lifescape* full of people and activity.[39] For example, they would say things like "I used to live over there, and I liked it there because every morning I could go two doors down to K's house, and we would walk down to the water and stop at Neguchi's to get some tea on the way. Then K and I used to watch the sunrise as the boats went out." Reconstructing such memories was emotional and probably therapeutic for many residents, and it also served to remind them of the kinds of places and structures and practices which they valued in their community, past *and* imagined future. At the following meeting on August 25, the group reviewed and discussed the memories and places they had "seen" during their walk.[40]

Machi-aruki is an example of a classic *machi-zukuri* activity. It is intended to serve much the same purpose as the scale model at the Osawa district meeting. Indeed, the model enables residents to see and remember and walk through (or even fly through) their old *machi* in an analogous, somewhat virtual way. Prof. Osamu Tsukihashi of the Kobe University Dept. of Architecture, who built the Osawa model with his students, notes that while the model generally serves a similar function as the practice of *machi-aruki*, the advantage is that it fixes the past townscape — and thus residents' memories of their "lifescape" — in a relatively durable, physical artifact. In Tsukihashi's memory- and lifescape-building activity, residents pore over the model, identifying personally significant locations such as their homes, their favorite shops, or the tree under which a husband-to-be first proposed marriage. Using different colored paints supplied by

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39. Tsukihashi interview (April 2013).
40. Nozaki interview (September 2012), *Fukkō Juku* notes (September 2012).

Tsukihashi's team, they paint the model, a ritualistic and symbolic embodiment of instantiating their lifescape of their memory.[41]

In the case of Tadakoshi, although it was undoubtedly useful for many of the residents, others commented to me that, while they found *machi-aruki* to be a pleasant way to spend an afternoon, it was not the most productive expenditure of time, especially since Nozaki's team had not been brought on for *machi-zukuri*, but rather only to help facilitate residential relocation to high ground.[42] However, such an activity, which helps the residents to remember the structures, places and practices that had been valuable to them in their pre-disaster past, is designed not only to benefit the residents themselves, but also to educate the non-local experts about local culture, the predisaster condition of the village, and the residents' current state of mind.[43]

During the *machi-aruki* activity, it became evident to Nozaki and his colleagues that, despite the residents' initial misgivings, the locals still did not fully grasp the scale of the re-designed seawall and levees.[44] Therefore, the expert team set about constructing a scale model of Tadakoshi that would clearly demonstrate the full impact of the new structures on the *hama*. They unveiled this model at the next meeting on September 23.[45] When residents saw it, they gasped and cried out in shock and disbelief. The group discussed possible measures to deal with the levee plans that were

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41. Japanese houses often have colorful tile roofs, so this activity works especially well in such a context.
42. Neguchi interview (March 2013), Kameya interview (March 2013).
43. The practice of *machi-aruki*, be it through the ruins of the town or through a scale model, somewhat recalls the process of collective, communal learning described by Lee & Roth (2003), in which members of a community walk through their local environment and subsequently engage in environmental policy deliberations. While individual members may not master all the aspects of the situation, technical or otherwise, as a collective whole the *community* is able to master it.
44. Nozaki interview (September 2012), Asami interview (October 2012), *Fukkō Juku* notes (October 2012).
45. Tadakoshi meeting notes (September 2012).

now more unpopular than ever. As described in Chapter 3, one suggestion was to fill in the "V" between the seawall and the roadway, so that the resulting flat area could be used for something like a community center or a fishing *banya*. However, fundamentally, people did not seem to feel that they had the power to influence these plans.

As of this writing, it remains unclear what will happen to Tadakoshi's *hama*. A recent publication suggests that the lower portions of it may be raised as much as 4.5 meters, still less than half the height of the planned seawall.[46] Such a project would be less extreme than the solution proposed for a similar district on the Sanriku coast, which, for reasons that will become clear, I pseudonymize in this account as Kamegawa. This village, like many others on this coast, resembles Tadakoshi — a small *hama* situated in a narrow valley, punctuated by a stream and criss-crossed by some roads. As with Tadakoshi, the official plans called for massive seawalls and levees, rendering much of the *hama* unusable and aesthetically unappealing. The Kobe-based PRP expert working with Kamegawa took it upon himself to press the prefecture to find a way to modify their plans. Armed with the opposition of the local residents, he was able to persuade the prefecture to look into alternatives. Eventually, the government's planners and engineers (including contractors) revised their plans. According to their revised plans, the *entire hama* will be elevated to the height of the seawall.[47] Clearly, such a solution is only remotely feasible because of the relatively small size of Kamegawa's *hama*. Even so, especially when considering that the government will "cut" a hilltop for residential relocation, the scale of this project, including the funds and manpower required to implement it, is impressive.

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46. Oguma (2013). This English translation of Oguma's Japanese article spells Tadakoshi as "Tadagoshi."
47. Neguchi interview (March 2013), Nozaki interview (April 2013).

Undoubtedly, the cost will exceed the total income of Kamegawa by orders of magnitude. Nevertheless, this revised engineering plan appears to be a clear case of citizens and experts working together to successfully produce a significant change in official plans for the community's built environment. Yet, even this change is somewhat limited and within the basic parameters set by governmental planners and engineers. Indeed, it is instructive that this tentatively successful "compromise" plan is one that entails even more intensive engineering and construction work than the government's original plan. For the infamous Japanese "construction state" or *doken kokka* (独見国家), public works construction is, by far, the biggest hammer in its toolbox of solutions, and this problem, too, looks like a nail.[48]

As it stands now, only the experts and a few local leaders of Kamegawa are aware of these plans. They specifically asked administrative officials not to announce this plan until at least 2015. One of them informed me that they decided to conceal the plans from the other residents because they reasoned that, once everyone knew that their old land would be substantially raised to a relatively safe elevation, they would decide to opt out of the relocation project in favor of waiting for the *hama* engineering project, or they would immediately move back.[49] Although backed by funds from the national Reconstruction Agency, financing for the relocation project depends in part upon a scheme whereby the government would purchase the residents' old land in the *hama* and either convert it to public space or, ideally, sell it to a commercial concern. As with most of the recovery plans throughout the districts and towns of Tōhoku, the low areas of Kamegawa's *hama* are slated to become zoned for public park space and

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48. McCormack (1995). At the time McCormick was writing, Japan spent more, as a percentage of its GDP, on public works construction than the United States spent on defense. I further discuss the consequences for the recovery of the "construction state" in Chapter 6.
49. Neguchi interview (March 2013).

industrial and commercial use (offices, shops, processing plants for fish and other sea products, etc.).[50] Perhaps two or three residents could pull out of the relocation plan without sinking it, but any more than that, and the relocation effort would disintegrate, and the village population would remain in limbo for a much longer time while waiting for the completion of the *hama* elevation project. In any case, if the official plans for Kamegawa were to be adopted, even in a less extreme form, for Tadakoshi, it would have the potential to severely disrupt the *takadai-iten* and overall recovery planning processes there, as well.

Beginning with the meeting on October 24, 2012, Tadakoshi's residents began discussing the layout of their planned subdivision as well as the specifics of their new homes.[51] They talked about how to angle the houses and streets such that as many homes as possible would be on a corner and have a view of the sea. They talked about preferences for Japanese tatami mats or Western-style floors. (Consensus was that everyone wanted both.) From this meeting onwards, the atmosphere at the planning meetings changed. People were looser, more positive and optimistic as they were further removed from the disaster and looking forward to a home that was beginning to seem realistically attainable in the not-too-distant future.

Tadakoshi's current status, at the time of this writing, is hopeful but still uncertain. The layout of the new subdivision has been settled, with roughly a dozen private homes on 100-*tsubo* plots and 20 or so public housing units on 50-*tsubo* plots (the latter also being separate, single-family homes, however). As discussed at the meetings, residents feel that they had no choice but to accept these smaller-than-ideal plots, although they are excited about the prospect of being able to move into their

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50. Thus, it would be understandable if some residents were to interpret this plan as a land-grab by the government on behalf of commercial interests.
51. Tadakoshi meeting notes (October 2012).

new homes within the foreseeable future. Yet, as all of the tsunami-devastated coast enters a phase of intensive reconstruction, manpower and machinery are becoming scarcer and increasingly costly. It may be three, five or more years before the displaced residents of Tadakoshi can move into their new homes.[52] As many of them are in their 70s or older, it is possible that a few of them may not make it. Furthermore, as was the case in Kobe, the temporary housing facilities have nurtured their own sort of community among the densely packed residents, and leaving that behind is not entirely an occasion for celebration.[53] Indeed, in cases where residents have moved out early to rent housing elsewhere, many of them find themselves regularly returning to the temporary housing settlements to meet friends or to engage in community activities at the meager common rooms in the facilities.[54] Furthermore, a topic that few want to discuss explicitly is the fact that few young people remain; some have acknowledged the prospect that massively expensive, engineering-intensive towns and subdivisions will be sitting mostly empty within 10 or 20 years.[55]

Although the relocation site has been approved and agreed upon in principle by the current owner, the terms of the sale have yet to be negotiated. Neguchi, among others, is worried about the possibility that the sale could still fall through. There are also ongoing negotiations with the owner of the parcel across the highway to use it for vegetable plots. Nozaki has been in talks with the Residents Association about

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52. Neguchi interview (March 2013), Nozaki interview (April 2013), Yoshino interview (May 2013).
53. Olshansky et al (2005), Edgington (2010), Otani (2010), Maly & Shiozaki (2012).
54. K. Baba interview (March 2013).
55. Tanaka interview (February 2013), Kawawaki interview (February 2013). At a meeting between researchers of the International Recovery Platform (IRP) and officials of the Reconstruction Agency (RA), the former asked the latter about the extent to which these prospects were considered in their policies. An RA official winced and drew back as if struck, replying that such considerations were unethical and anathema to even think about. IRP-RA meeting notes (February 2013).

beginning a *machi-zukuri kyōgikai* for the entire district, and discussing specific options for re-envisioning the entire village and reconstructing the *hama*.[56] Whereas participants in the *takadai-iten* association are primarily displaced residents who lost their homes, the Residents' Association also comprises some who did not sustain damage. In other districts, as Nozaki discusses at the *Fukkō Juku* in Chapter 2, there has been tension between those who lost homes or businesses and those who did not; however, in Tadakoshi this has been minimal. Regarding Nozaki's role, a concern for the residents is that his funding is limited to 15 total visits to each district.[57] His own organization, Machiken, provides little financial support. Primarily it is Hyōgo Prefecture that provides the funds for his travel and accommodation. Since he has just begun working with one or two other nearby villages, he has proposed to continue advising Tadakoshi while on trips officially tied to those other districts.[58] Nevertheless, his funding is limited, and the recovery will be a long one, leaving questions about the long-term viability of the community's efforts to re-establish itself.

The lack of a system for selecting, funding and distributing expert consultants not only affected the starting dates for various districts' PRP initiatives, it is also likely to impact what happens to these endeavors down the road. Outside PRP experts like Nozaki will need to find alternative sources of funding or else bring their activities to a close, while others such as Tsukihashi — funded by Kobe University as well as by a special project of NHK Television — will likely be able to carry on further, but perhaps not forever. Kobe's recovery arguably took 10 to 15 years.[59] Even ignoring the unique problems posed by the ongoing Fukushima nuclear crisis, given the scale and

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56. Tadakoshi Residents' Association meeting notes (October 2012).
57. Neguchi interview (March 2013).
58. Nozaki interview (April 2013), Neguchi interview (March 2013).
59. Olshansky et al (2005), Edgington (2010).

array of challenges facing Tōhoku, it seems highly unlikely that the region will achieve anything close to a recovery in 10 to 15 years.

Fig. 4-1 : PRP meeting for Tadakoshi District, Karakuwa. Note the experts and leaders around the outside of the table, residents toward the back of the room. The women are on the floor in the center, while many of the men sit on chairs. The young people standing in the back are journalists from NHK and the *Mainichi Shinbun* newspaper. Photo by author (February, 2012).

Fig. 4-2 : A PRP meeting for discussing *takadai-iten* in Tadakoshi District, Karakuwa. The men in the jumpsuits, in the center of the photo, are Miyagi Prefecture planning officials. Note the foamcore model on the right, the man standing and taking notes, and the wall-mounted maps of the *takadai-iten* plans. Photo by author (October 2012).

Fig. 4-3 : Residents and PRP experts discuss the *takadai-iten* plans for Tadakoshi. Photo by author (October 2012).

Fig. 4-4: A PRP meeting in Ozaki District, Kesennuma. This meeting was completely dominated by males, despite Nozaki's strenuous efforts to encourage women to participate. Photo by author (February 2012).


Fig. 4-5: A PRP meeting in the cramped community center of a temporary housing facility. Photo by author (February 2012).

Fig. 4-6: A meeting to plan for participatory recovery planning in an elementary school building in Shishiori District, Kesennuma. The participants of this particular meeting included experts, local leaders, journalists and scholars, but no other residents of the district. Photo by author (February 2012).

Fig. 4-7: Part of the temporary housing facility in the baseball outfield in Onagawa, Miyagi Prefecture, with the scoreboard visible on the right side. Space for such facilities is at a premium in Japan. These are the only multi-story temporary housing units in Japan. They were designed and built based on shipping containers by renowned architect Shigeru Ban, who had earlier contributed the famed "Paper Dome" Catholic Church to the Takatori neighborhood in Kobe. Onagawa is a small town with a population of around 10,000, but is famous for its high-quality public facilities such as this baseball field. It is generally thought that these facilities are possible because of payments from the Tōhoku Power Company, which operates a nuclear power plant on the town's Pacific coast. The plant is slightly elevated and surrounded by a 14-meter seawall (whereas Fukushima's seawall was just 5 or 6 meters high). The tsunami reached the 13-meter mark, but the wall held, and the plant served as an evacuation center for homeless residents in subsequent days. Photo by author (March 2012).

4.2: Differences among experts, differences among residents

Within the relatively small city of Kesennuma (population approx. 78,000 before the tsunami; 73,000 now), Shishiori District had been a fairly urban waterside community, an area densely packed with a variety of residences, restaurants, commercial shops, and fish processing businesses. Now about two thirds of the area was a nearly empty expanse of rectangular building foundations with a few temporary structures here and there — the most prominent of which was now the red, blue, and white 330-ton fish carrier vessel *Kyōtoku Maru No. 18*, resting in its final berth about 800 meters from the water, on top of a burnt-out car and a couple of house foundations. Because of its relatively high population, urban-like development and complex patterns of land and building ownership, Shishiori District faced a more complicated recovery planning process than the small fishing villages of Karakuwa. As was the case with black zones in Kobe,[60] it would require land readjustment — a process that entailed extensive negotiations between the city, land owners and structure owners in order to reach consensus agreement over future ownership, and thus the ultimate shape of recovery plans. In addition, because of the size and social complexity of the district, including multiple institutions and fragmented groups, it had proven exceedingly difficult to corral everyone, or even a reasonably representative group of everyone, into a single meeting, much less an ongoing, coherent process of deliberation.[61]

While Nozaki had been able to hold a workshop on how to organize and run a *machi-zukuri kyōgikai*, neither he nor the locals had been able to actually pull one together. By March of 2013, the municipal government of Kesennuma was proceeding

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60. Q.v., Chapter 2.
61. Shishiori meeting notes (October 2012), Nozaki interview (October 2012), Takeuchi interview (March 2013).

with its own recovery plan for the area — the city's third draft, all compiled by official planners and major contracting firms, with minimal public input. With each successive draft, residents saw their future townscape (and lifescape) mysteriously revised. One displaced resident, Eiichi Katō, described the radical changes in the plans for his own land:

> First, my house was in the middle of the green belt, between the commercial zone and the residential zone. So, I was worried, what am I going to do? Will the government pay me enough for my land so I can build my new house in another location, especially when, you know, prices are so much more expensive now after the tsunami. Then, they changed. My friend in the city hall told me, don't worry, we made the green belt more narrow, so now your house is in the residential zone. But now, in the latest plan, they're going to build big public housing apartments right on top of my land! And it's been two years we've been waiting; many people have already moved away…. Anyway, people in my situation, they are going to let us exchange for different land in the district. We have to select from residential zone or commercial zone or industrial zone. This is something I want you to write down in your report: why do we have only three choices? Why is this menu so limited? They should let us, the community, decide for ourselves. This is an opportunity for creativity. We can't just go back to the same old ways.[62]

Although Katō's complaints were directed at the municipal government's own planners and contractors, not at PRP experts such as Nozaki, he expresses a sentiment common among residents, which such experts must address. Katō balks at any attempt to restrict his choices, to circumscribe his and his neighbors' abilities to plan their own community's future. In addition to his annoyance at the seeming capriciousness of the planning outcomes, he feels that the "opportunity for creativity," to revitalize and improve his community, is being wasted because official planners are dictating a

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62. Katō interview (March 2013).

limited set of unimaginative possibilities.

Tadamori Arakawa, a tea seller in the Shizugawa District of Minami-Sanriku, a town just south of Kesennuma in Miyagi Prefecture, echoes Katō's complaint of limited choice and limited control, and goes perhaps even further in his indictment of processes that fail to involve residents in planning for their own future. Arakawa's conjoined house and shop were destroyed, and he now lives with his family in temporary housing while running his shop in the temporary shopping center "Minami Sanriku San-San." He said that residents had been invited by city officials to form a *machi-zukuri* group for recovery planning only *after* the municipal administration and its contractors had made the major decisions, such as building a seawall nearly twice as high as the one that was overtopped on 3.11, and moving displaced residents of the single *hama* to three separate parcels of high ground.

> I met some officials in the planning department. I told them to please explain whose opinions they adopted to design [the plan]. They answered that they didn't know. I asked them if we would discuss whether the plan is good or bad in the first place. They said no, it has already been determined, so we need to discuss how people will move to one of the three parcels of high ground, as outlined in the plan. So I was very surprised, because they skipped that crucial discussion. This means that people need to discuss the implementation of a decision the city already made. It is totally backwards. So the administration made the "*machi-zukuri*" association and just treats it as a delegation of residents to explain things that have already been determined, and to secure agreement. The association is for that purpose only. They already have an agenda and topic for discussion. Rather than [letting us] discuss things freely, or make our own outline of issues, it has already been prepared…. Well, that's not *machi-zukuri*…. Participants are only permitted to freely discuss points that completely lack any importance whatsoever.[63]

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63. Arakawa interview, February 23, 2013.

In a subsequent interview, Arakawa expanded further on these themes:

> It would have been better if they could have presented several different types of plans as a starting point, and then flexibly discuss modifications, but even that seems impossible. For example, let's say that we have three plans. One is the plan on the distributed model [of three separate residential areas], in another the town is concentrated on just one mountainside site, and the third plan is something else entirely. Then if the administration would ask which one is okay for us out of these three, this method is better. But they say, "There is only this one. This has already been determined." We feel like we're ignored....
>
> You know, we don't need the seawalls. We don't need to have them that high. But the national government and the prefecture have chosen to move forward with this plan.[64] They should ask *us* about the plan because *we* are the people who actually live in this town. People continue to live here, so this town belongs to *us*, right? But without making any effort to listen to us, they just do what is easy for them. This is about their vested interests, probably…. We don't need the seawalls. We decided not to live [in the *hama*], so they shouldn't spend wasteful money. If they have that kind of money, they should build our houses for us!
>
> Why has the plan been done in this way? We were never informed of anything. It's wrong. I think it is wrong that people who will live here in the future are not given a place for discussing the plan of the town. I think the new town should become a place where we want to live, even better than the former town. We have that kind of opportunity now, so it makes me extremely sad not to be given a place for discussion. I sometimes feel that this is a plan for destroying the town. People will leave.[65]

Arakawa is upset that residents had not been properly consulted in the most fundamental planning decisions prior to the completion of the basic recovery plan. He feels that officials were ignoring the voices of residents and that the *machi-zukuri* association was a sham, a tool for legitimation, designed to *appear* to offer the opportunity for residents to participate in the planning of their town's recovery, but

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64. The word used for "national government" here was 国 (*kuni*, "nation" or "country").
65. Arakawa interview, March 12, 2013.

actually denying them the chance to deliberate on anything other than trivial details and, in fact, serving only as a mechanism to secure agreement from what *appeared* to be a legitimately representative group of citizens. Furthermore, he reveals some distrust of official motives ("this is about their vested interests"),[66] and feels that the specifics of the plan may be counterproductive to recovery and perhaps even ultimately destructive to the town.

To further illustrate the residents' perspective and ultimately for the purpose of drawing a stark contradistinction between PRP experts and official, government-aligned planners, I present more of Arakawa's incisive critique:

> I was talking to some guys who said they worked for a general contracting company in Sendai. They said that they made the town's recovery plan. I asked them why they designed it like this, and what was their objective. They answered that the top priority was the consideration of residents' safety. Securing safety by living on high ground is the primary point. Then I asked them if they had considered [the point of view of] the people who actually lived there or not. They said, no, they hadn't thought about it. Also I asked how people can get from one [of the three planned residential districts] to another. They answered that people around here use their car. Incredibly, they thought that even old people drive around here! I was amazed — can it really be that such people make a plan? That is impossible to understand. They believe that there are no problems, because *they* have cars.
>
> Are there any lively communities anywhere that are split apart into separate areas? I want to know. Of course it makes sense to connect those areas with a road. Do you think we can walk? It's not within walking range. Also, there are steep grades in between. In the winter, the road may be frozen, so we don't know if old people can get around.[67]

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66. Cf., Chapter 5, on motives, interests, and trust. This relates to the "construction state" and the corrupt yet accepted and endemic practice of *amakudari* (天下り, "descent from Heaven"), by which government agencies and private corporations are inextricably linked.
67. Arakawa interview, March 12, 2013.

Here, among Arakawa's complaints is the fact that the government-hired engineers who made the initial recovery plans did so while making erroneous assumptions based on their own perspectives (e.g., "we drive, so everyone can drive"), which did not fit local conditions (elderly residents may not be able to drive). The engineers to whom Arakawa spoke stated outright that they did not consider the perspective of the people who were to live in the town they were planning, but only that they had prioritized "safety" through residential relocation to high ground. The engineers' perspective appears to be that "safety" is an objective category that can be measured and "secured" regardless of local conditions, and that it is only measured with respect to tsunami risk, whereas Arakawa points out other forms of risk — elderly drivers, winter driving, social dissociation and the fracturing of community from splitting residential areas into three distinct and somewhat isolated locations.

Arakawa and Katō's experiences with "bureaucrats and experts," to paraphrase Wynne, conform well to accounts within PES studies describing distant (geographically and otherwise), context-insensitive, government-aligned scientists and technical experts.[68] As the following account demonstrates, however, PRP experts such as Nozaki and his colleagues from Kobe do not follow this pattern.

In late October 2012, Nozaki and his team met at Shishiori Elementary School with several leaders of Shishiori District, including Mr. Onodera, head of the community hall. The school, still undergoing repairs and renovation, was now the temporary home of the community hall, as the latter had been destroyed. It had been more than a year since their first meeting, yet still they had not begun *machi-zukuri* or any kind of participatory planning process. This day's meeting would include a mildly

68. E.g., Wynne's soil radiation scientists who failed to understand or even consider the local conditions in Cumbria in which their advice would be implemented (Wynne 1989, 1992, 1996).

contentious and quite revealing exchange between Nozaki and Onodera.

Prior to the October meeting, Nozaki and his compatriots told me of their frustration with Shishiori's lack of progress. After almost a year of meeting with local leaders, they had been unable to get a more broadly participatory process under way, but now time was running out. The central and prefectural governments had dictated a March 2013 deadline for the city of Kesennuma to produce a basic land-use and reconstruction plan for Shishiori. Decisions to be specified in the plan included drawing the boundaries of industrial, commercial, private residential, public residential, and public park zones, and whether to keep the *Kyōtoku Maru* as a kind of memorial or not.[69] Residents and businesses needed to decide what they wanted do with their land and buildings — rebuild on site, relocate elsewhere in the district, or emigrate. Decisions needed to be made about the kinds of structures that would be used as public housing (e.g., single-family homes, collective housing clusters, multi-unit condominiums, etc.), about the widths and elevations of roads, about the locations and types of bulwarks or tsunami defenses, and about the elevation of each zone. The land had subsided about 80 centimeters in the earthquake, and the main roads were already being elevated over a meter.[70] In short, a huge range of critical decisions had to be settled in a highly compressed time period. At the meeting in October, the group of PRP experts and local leaders was discussing how to go about an accelerated PRP process before the deadline, when the following exchange occurred.[71]

> **Onodera**: You have experience with *machi-zukuri* in Kobe and did a lot of work there. So we want you to give us suggestions, such as do this or don't, we should do things

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69. The latter decision ended up being delayed, and was heavily debated, but eventually the mayor decided to scrap the ship, in a bow to those who argued that it was too painful a reminder of the tragedy of 3.11.
70. Q.v., Fig. 4-8.
71. Transcribed and translated from notes and audio recording, October 26, 2012.

this way, etc. We are such beginners, so what residents are thinking is, basically, we just have the image of our former town. That is all. We don't know anything about the wonderful systems of big cities. That is why we want you to give us your expert advice, because we know nothing about such matters.

Nozaki: Well, if the *machi-zukuri* association in Shishiori had been established much earlier, we could have done more, such as doing a survey and conducting individual interviews. In that case we could get to understand people's situations and opinions more deeply. Unfortunately, we all know the deadline. If we simply give you those suggestions now, it might complicate the situation. If we had time, it would be fine. We could discuss things thoroughly and get consensus. But right now we do not have the time to do this properly, to be honest.

Onodera: So you are saying that the only thing we can do is just something really basic?

Nozaki: That is right. I have to be clear about things we cannot compromise. [long pause] Of course, we could bring in some examples of Kobe's experiences of land readjustment. For example, planning the details of a park, such as putting benches here or there. We could bring some specific cases. But I don't know if those would work here.

Onodera: We here don't have that kind of urban planning sense. Parks, or wooded areas of the townscape, for example, or bringing the murmur of a stream into the town, like the Matsumoto district in Kobe.[72] We don't have such kinds of images in our mind. We want you to teach us about those examples. We want you to draw a blueprint. You know, like, if a road is set up here, then you can make a stream. If the width of road is 16 meters, then build 1-meter channels on each side. Build a fountain. Something like that. That kind of expertise is what we are missing, and that is what we need to rebuild Shishiori.

In this exchange, Nozaki expresses frustration that he has been unable to

72. Q.v., Chapter 2, "Tsuji: finding the middle path in Matsumoto."

engage personally with local residents and thereby steep himself in knowledge of local conditions *prior* to any discussion of concrete, technical options. Although he acknowledges that there is no longer sufficient time to do so, he implies that failing to proceed in this manner, especially without allowing enough time for subsequent deliberation and consensus-building, would risk the outcome of locally inappropriate decisions through premature framing. By cautioning that solutions which "worked" in Kobe might not be appropriate for Shishiori, he implicitly denies that recovery planning know-how can be universally applied across disparate contexts. In short, he wants to elicit and give due consideration to local knowledge and opinions prior to providing "expert advice" so that any recommendations given are appropriate to local conditions. Onodera, on the other hand, presses Nozaki to share his expert knowledge with the locals in the form of a rule-based "blueprint."[73] He wants unambiguous "expert advice" in the form of specific options, including "lessons learned" in Kobe that can be simply transferred to Shishiori.[74] His implicit position appears to be that expert knowledge is universal — or at least that the responsibility for contextualizing Nozaki's technical knowledge and advice belongs to the locals themselves, not to the experts.

This scene demonstrates several points of interest. First, it is by no means the case that the only thing non-experts want from experts is to be understood on their own terms. They are not necessarily concerned about whether experts consider local conditions or exhibit "reflexivity." They also want to learn the technical knowledge of the experts — specifically the knowledge which they perceive themselves to lack — or at least to be able to take that knowledge into consideration when making their own

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73. At other points in the meeting he speaks of a "menu" of options.

74. Cf. the "two-stage model" of popularization of scientific knowledge, in which such knowledge is first unambiguously produced, and then subsequently disseminated to the public (Hilgartner, 1990).

decisions. For non-experts like Onodera, that is the essence of technical advice, and the primary reason that expert advisors are consulted or invited to participate in endeavors such as recovery planning. The second point is the inverse of the first: for PRP experts such as Nozaki (as opposed to official technocrats), it is not necessarily the case that their preferred approach is to blithely dispense putatively universal technical knowledge to non-experts regardless of local conditions or the recipients' situation; rather, they proactively seek to deepen their understanding of locals' perspectives and conditions. Moreover, they tie that understanding closely to the way they construct their own effectiveness as technical experts.

Note that whereas Onodera expressly asks Nozaki for an unambiguous "blueprint" and a set of concrete, well-defined choices, other residents like Arakawa and Katō do not want their choices to be limited. They want to take advantage of the "opportunity for creativity." They want to have a say, and they want to be understood. At the same time, there are those who, like Onodera, may primarily be concerned with extracting putatively universal technical knowledge from experts. Note that these desires are not necessarily incompatible; Katō also told me that he wanted more experts to come to Kesennuma to share their knowledge, and Arakawa spoke with gratitude of a businessman from Kobe who shared his own knowledge of revitalizing retail businesses in the aftermath of a disaster.

Nevertheless, I would argue that these examples demonstrate a certain tension between two, divergent impulses: one seeking expanded possibilities of self-determination and deeper, more contextualized understanding from experts; the other seeking useful, actionable technical knowledge and concrete options to clarify possible paths forward. Inasmuch as experts such as Nozaki necessarily "engage" non-expert locals, they must deal with both impulses simultaneously.

It is important to emphasize that the phrase "experts such as Nozaki"

specifically refers to *PRP experts who specialize in "engagement" or in facilitating participatory processes*, not to those built-environment technical professionals involved in recovery planning, mainly working for government agencies and major general contractors, who largely do *not* play this "engagement" role. They engineer and design and draw up blueprints without *engaging* members of the public. Unlike them, Nozaki expressly takes into account local knowledge and conditions while also advising local non-experts based on his built-environment "expertise" in the more conventionally conceived guise of a technical consultant. Certainly, as one who possesses specialized knowledge about recovery planning and the built environment, his role entails a responsibility to share this knowledge with residents going through recovery planning. Indeed, as Onodera implies, this is likely the primary reason that he and the other local leaders have invited Nozaki to participate in Shishiori's process.

Unlike Nozaki, Onodera sees a clear distinction between, on the one hand, Nozaki's desire to learn about local conditions, and, on the other hand, his role as an "advisor" or dispenser of technical knowledge. While learning about the neighborhood and getting to know residents better may be helpful and appreciated, such things are fundamentally ancillary to Nozaki's role as an expert consultant, in Onodera's view. However, from Nozaki's perspective, in order to fulfill his "advising" role effectively, he must also become familiar with local conditions — including, to some extent, individuals' specific situations — so that his technical knowledge is contextualized in a way that is appropriate for the local context. The putatively distinct roles of PRP facilitator and expert consultant blend together. The exchange between Onodera and Nozaki demonstrates that, at times, PRP experts must manage an apparent tension between these two objectives, particularly when their clients demand one without the other. This is dangerous territory. Onodera's comments reveal an expectation about what an expert is or should be — a technically knowledgeable dispenser of specialized

advice — as well as an implicit demand that Nozaki should prove his worth by demonstrating this kind of expertise. Contravening such expectations consequently risks the diminution of Nozaki's credibility as an expert. Note that "technical experts," in the conventional mold, face no such double bind; it is a dilemma uniquely faced by those experts who view their "engagement" expertise as continuous with their "technical" expertise. Although there is no pat solution, this is a dilemma that such experts must occasionally navigate.

Fig. 4-8: The Shishiori District of Kesennuma. This photo shows how the reconstructed road is elevated about a meter or so higher than the surrounding land. This area had subsided about 80 cm in the earthquake on March 11, 2011. Visible in the background, behind the taxi and the telephone poles, is the *Kyōtoku Maru No. 18*. Photo by author (February 2013).

Fig. 4-9: Signs resembling paper cutouts in the Shizugawa District of Minami-Sanriku. In this area, people had lived in the upper floors of their shops and businesses, and they had hung paper cutouts above their doorways that symbolized their businesses or something meaningful to them. They erected these signs on the exact locations of their homes and businesses about 18 months after the tsunami as a memorial, and as a way of reconstructing their townscape in their memories. Photo by author (March 2013).

Fig. 4-10 : The *Kyōtoku Maru No. 18*, resting in its final berth in Shishiori District, Kesennuma, about 800 meters from the shore. The sign says "Flowers for Shishiori." There had been flowers planted here the previous spring. Photo by author (February 2013).

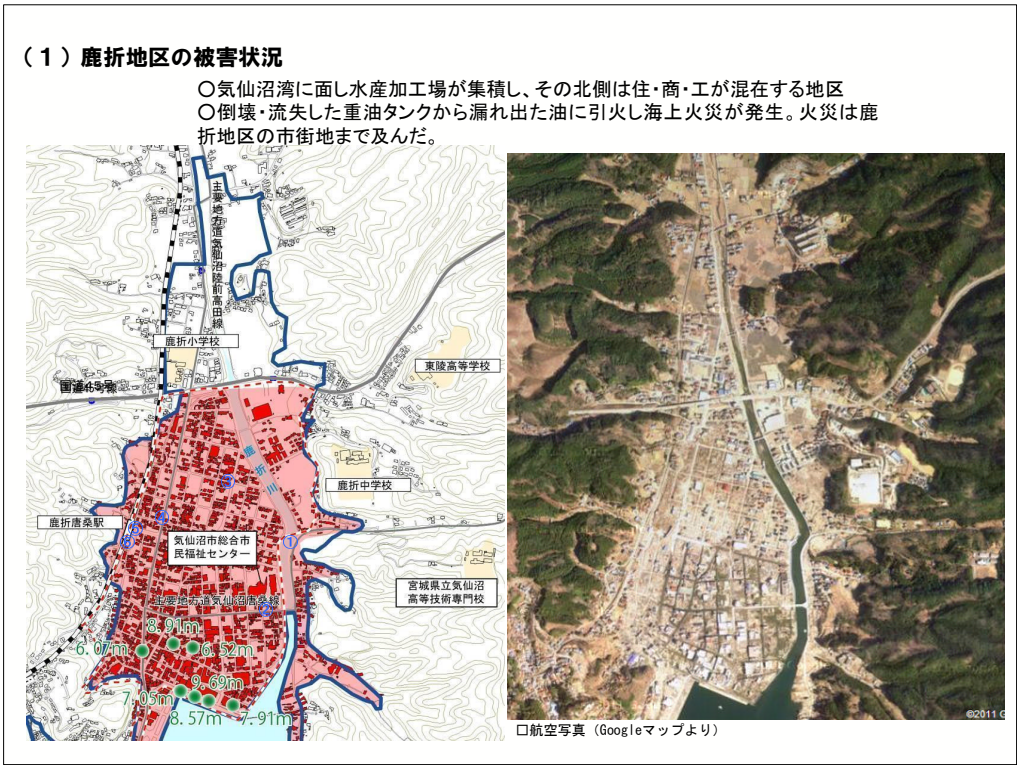

Fig. 4-11 : Satellite photo and diagram of damage in Shishiori District, Kesennuma. Source: Kesennuma City (2012).

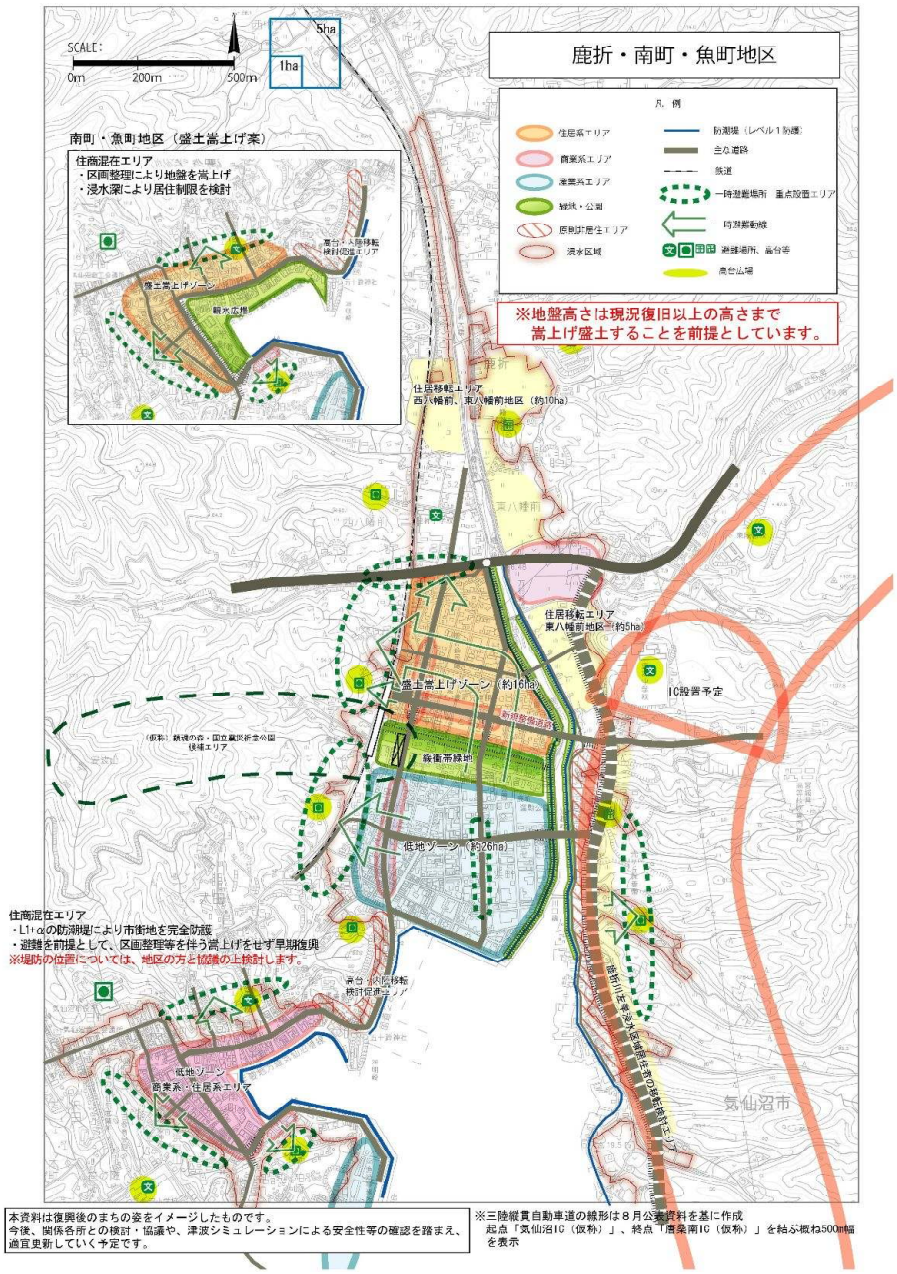

Fig. 4-12 : Diagram of a draft recovery plan for Shishiori District, Kesennuma. The blue zone is industrial and fishing. Green is a park. Orange is residential. Pink is commercial. The dotted ovals mark proposed locations for *takadai-iten*. The Source: Kesennuma City (2012).

4.3: Collaborative learning and the lay/expert convergence (née divide)

Arguably one of the most important achievements of Science and Technology Studies (STS) has been the replacement of a "deficit model" of an irrational and technically ignorant public with a theory that cites the contingent nature of rationality and the situated character of knowledge to argue that various publics are eminently rational and knowledgable within the contexts of their own social life-worlds. Scholars have argued that "lay knowledge is not an impoverished or quantitatively inferior version of expert knowledge; [rather,] it is qualitatively different [and] no less sophisticated than specialist expertise."[75] By acknowledging the diverse, situated character of rationality and expertise, theorists have established a kind of "capacity model" of a "lay public" endowed with agency, reflexivity and the ability to make shrewd judgments about credibility based on social identity and other markers of trustworthiness.[76] If the old model was associated with the field of Public Understanding of Science (PUS), the newer one has come to be associated with its "evolved' form, Public *Engagement* with Science (PES).[77]

All forms of rationality and expertise are situated and contingent, including those of publics, and technical forms of expertise are no exception. Rather than universal, scientific and technical ways of knowing are, in the words of Brian Wynne, just as "parochial" as any other culturally, materially and historically bounded way of knowing. A consequence of the shift toward a "capacity model" of the public has been

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75. Bucchi (2008), p. 451. Cf. Jasanoff (2003). Note, however, that such a position is hardly unanimous within the field of STS, as there remains disagreement about the nature and role of "lay" or "local expertise," especially vis-à-vis expert knowledge and expertise. Witness, for example, the debate over the "Third Wave" typology or "periodic table' of expertise espoused by Collins & Evans (2002, 2003, 2007). E.g., Jasanoff (2003b), Rip (2003), Wynne (2003).
76. See, e.g., Michael (1992), Wynne (1992, 1996), Irwin (1995).
77. Cf. Durant (2008), p. 18.

the concomitant reconceptualization of technical experts who appear "unreflexively" and institutionally blind to the situated character of knowledge and the nuances of local context.[78] Such blindness is not a result of idiosyncratic failures but rather is fundamentally constitutive of the scientific enterprise and, indeed, all narrowly technical expert institutions and knowledge frameworks.[79] In short, it would now appear that a "deficit model" of "the public" has been replaced by (what could be construed as) a "deficit model" of technical experts.

If this is the case, then PES frameworks implicitly retain the assumption of a nearly incommensurable lay/expert divide, carried over and inverted from the old PUS model. Like two rivers that never cross, technical and non-technical ways of knowing flow in parallel streams.

This dissertation does not pretend to weigh in upon all forms of technical expertise. Its focus is post-disaster recovery experts and built-environment professionals. As noted in Chapter 1, for STS and PES scholars this is a somewhat unusual context in which to study public engagement with technical expertise and sociotechnical change. PES studies have typically examined policy-oriented, expert-guided public deliberation exercises on issues associated with emerging technologies, or grassroots responses to environmental and public health threats.[80] Yet the newest technologies are not necessarily the most relevant or important in people's lives.[81]

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78. Here, "unreflexive" is taken to mean that such actors are not self-critically aware, do not question their own assumptions, framings and perspectives, and do not consider the possible validity of alternative perspectives or ways of knowing. But see the discussion in Chapter 1 on the critique of the reflexive/unreflexive binary by Lynch (2000).
79. Picking on Wynne as the standard bearer for this view, such an argument may be found in much, if not all, of his work. See especially Wynne (1993) for a critique of institutional unreflexiveness. Wynne (1991) explicitly argues for the "*universal* validity" of this critique. Also cf. Irwin & Wynne (1996), Jasanoff (2003a).
80. E.g., Wynne (1982, 1989, 1992, 1996), Brown (1992), Irwin (1991, 1995), Jasanoff (1994, 1997), Sclove (1995), Fischer (2000), Allen (2003).
81. Edgerton (2006).

Compared to the "high-tech" gadget inventors or software engineers beloved by the news media, the built environment professions wield a far more direct and fundamental influence over the social and material configurations of our communities, cities and societies. This is one of the implications of Harvey's impassioned call for activist research toward securing "the right to the city:"

> The question of what kind of city we want cannot be divorced from that of what kind of social ties, relationship to nature, lifestyles, technologies and aesthetic values we desire. The right to the city is far more than the individual liberty to access urban resources: it is a right to change ourselves by changing the city.[82]

Are planning processes resistant to local, participatory and alternative modes of engagement and decision-making? PES frameworks often seem to assert that technical expertise is fundamentally un-reflexive and institutionally blind to the situated character of knowledge; does this characterization fit experts of recovery planning and the built environment?

The descriptions of PRP processes in Kesennuma given in this dissertation thus far may seem to suggest that inflexibility and resistance to local engagement are more due to structural limitations and political, institutional affiliations than to the character of these forms of expertise. From the outset, the scope of participatory decision-making was constrained by structures and plans put in place by official entities (e.g., the national Reconstruction Agency, UR, Miyagi Prefecture's civil engineering department, major general contractors), presumably based upon political and ethical calculus as well as unquestioned assumptions (e.g., moving residents to high ground and building gargantuan seawalls will minimize risk), and rooted in systemically ingrained bureaucratic habit (e.g., big engineering is the answer to every problem for

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82. Harvey (2008).

the "construction state").[83]

However, this account demonstrates that PRP experts like Nozaki, Takasago or Tsukihashi do *not* appear "unreflexive" or institutionally blind to local conditions. Indeed, Nozaki's discussion with Onodera in Shishiori indicates the contrary: these experts see it as part and parcel of their expertise to seek out, learn and incorporate local knowledge into their work. In Tadakoshi, Nozaki could have pushed his proposed plan of collective housing by overlooking the local culture, ignoring the cool reception of the residents, and failing to reflexively assess the appropriateness of said proposal. Instead, he recognized the feedback and put the proposal on ice. Likewise, Takasago could have forged ahead with flower planting; however, after relocating to Kesennuma he came to understand the importance of growing vegetables to the residents of Karakuwa, and modified his plans accordingly.

The above accounts of the planning process demonstrate that these experts consciously design and implement concrete strategies to gain understanding of the perspectives of the local residents. Some of these strategies are just as important as they are obvious: questionnaire surveys, group discussions, and individual (or household-

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83. Why does technocratic planning seem to consistently fail to take into consideration local knowledge, local conditions, and local people's desires? Why does it seem to consistently fail to reflexively question its own assumptions, processes and outcomes? An ocean of literature across the social sciences examines (and often impugns) various forms of such technocracy, from Jacobs (1961) to Scott (1998) to Wynne (1989, 1992b, 1996a). Though some, like Scott, try to draw conclusions about technocratic planning and governance generally, there are likely also diverse reasons for technocratic "failure" that are contingent upon the circumstances of each case. For example, with respect to recovery planning in Tōhoku, one obvious explanation for why the authorities have pushed forward with plans odious to local residents, such as gargantuan seawalls, is that officials simply lack a proper understanding of local history, culture, or opinion. An alternative explanation could be that authorities act strategically to limit competing perspectives, in order to implement plans that favor their own interests. I heard both explanations offered as speculation by residents of Kesennuma and Minami-Sanriku. Although I do not have enough evidence to resolve such speculation, it is important to note that a number of "factors" could come into play to influence "technocratic" planning on the part of government agencies and their contractors.

based) hearings or interviews. Of course, the least reflexive technocrat may employ such tools without learning anything of value about local conditions; their effectiveness depends upon details of implementation — what questions are asked, and how are the answers analyzed — and upon the individuals putting them into practice. In this case, key questions — e.g., "What kind of *machi* do you want to live in?" — are phrased as openly as possible so as not to unduly influence the framing of subsequent discussions and planning. Individual hearings are given plenty of time so that the discussion is free to roam. As Tsukihashi told me, although he is a professor of architecture, he views his key role as something more akin to an anthropologist. Without using the terms *emic* and *etic*, he argues that it is paramount for an expert to learn to see from a local perspective:

> What my theory is now, regarding the relationship between experts and residents, is that residents become experts, and experts become residents…. What I mean is, this process — residents becoming experts and experts becoming residents — this is actually *machi-zukuri* itself. That is my assertion.[84]

PRP experts like Tsukihashi and Nozaki employ other engagement strategies that may not be very obvious, or perhaps, may be so obvious as to be easily overlooked or under-appreciated. For example, simply going to the villages in question and interacting with the local people is a crucial "strategy." As Arakawa implies, the bureaucrats of the Reconstruction Agency and the engineers from the government planning departments and the general contracting firms did not take that simple step before codifying plans for residential relocation and intensive levee construction.[85]

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84. Tsukihashi interview (April 2013).

85. Note that the municipal website of Arakawa's town, Minami-Sanriku, boasts about citizen participation in its recovery plan. The government cites survey data and focus group discussions as its "participatory" processes. Yet conversations with Arakawa and others in the town indicate that few citizens feel that their views have been heard or represented in

Likewise, when interacting with the local people, the PRP experts from Kobe employ the simple method of listening to them, and, crucially, take deliberate steps to exhibit this fact. At meetings, for example, Nozaki's team tries to ensure that each person attending is able to express himself or herself at least once, and they pay particular attention — and provide special encouragement — to women and younger people, who may normally feel less inclined to speak up at such a public venue. Recall Morisaki's careful echoing of resident concerns at the *machi-zukuri* meetings of Takatori and Noda Hokubu in Kobe, described in Chapter 2. Likewise, through Asami's whiteboard notes and periodic summarization, they make sure to demonstrate that they have been listening, and that they understand and recognize people's thoughts and feelings.

The practice of *machi-aruki* and the similar use of the townscape model are perhaps the most notable and innovative engagement strategies employed by these experts. Tsukihashi describes the relationship between the material configuration of a town with the life-ways and memories of its residents in the following way:

> There is the landscape and the townscape, and within that there is actually what we might call a lifescape. When we talk about "building a town" (まちをつくる, *machi o tsukuru*), that may mean physically building, but when people live there, they create this kind of *lifescape*.[86] And then the tsunami comes, and the town is destroyed. But even if the town is gone, if we make a model like this, a portion of their lifescape will still remain. If the townscape is destroyed, then of course we must, with hard work, physically rebuild it. However, at that time we also have to salvage as much of this landscape remaining in memory as we can. Whether people retain this or not becomes so important for them when next they make a new townscape. But once they have lost

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the plan. (Sugawara interview, March 2013.) Other Kobe-based experts working in the area also report widespread anger among residents. (Kobe University Recovery Seminar, April 2013.)

86. Cf. Bourdieu's notion of "habitus."

> their townscape and have been living in temporary housing for a while, as time passes they won't be able to recall what they could recall before. So before they forget what kind of town they had and what kind of life they had, we want to preserve that memory in material form.[87]

Tsukihashi's description suggests that, as a part of the expert's role in gathering local knowledge and learning to see a problem from a local perspective, one effective strategy is to evoke and elicit memories, information, and affective expressions that inform the entire collective — not only the experts, but the locals themselves. The group discussions at meetings, in conjunction with Asami's notes and recap performances, the practice of *machi-aruki*, and the townscape/lifescape model all seem to perform this function.

Certainly, these experts can also be seen performing the more conventional role of "communicating" or "translating" technical information for the residents. Before Nozaki's team built the scale model of the Tadakoshi *hama* with the proposed seawall and levees, everyone — expert and non-expert — understood that the structures would be very large and would take up considerable space. Everyone had seen the numbers. However, evidently the experts' comprehension was qualitatively different from the residents' initial understanding. It was not until after the locals saw the scale model that they fully, viscerally grasped the scale of the proposed constructions, as evidenced by their shock and emotional response. This suggests that the model became a touchstone of mutual understanding between the two groups in a way that topographic maps, diagrams and verbal descriptions could not.[88] Note,

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87. Tsukihashi interview (April 2013). Cf. Mayumi Kudō's remarks in Chapter 5: "50 years passed, and they forgot, and they started thinking about their town as if it had always existed in its current form" (Kudō interview, March 2013).
88. Cf. the "boundary objects" of Star & Griesemer (1989). I cannot say definitively *why* the model was a more effective vehicle for mutual comprehension than other methods — whether, for example, this was due to the materiality of the three-dimensional model, or whether it had to do with the timing of its display (and whether this was instead of — or in

furthermore, the crucial first step undertaken by the team of experts: merely to recognize that while the residents' mild initial reaction showed a formal comprehension of the data (the dimensions of the levees, etc.), it also indicated a qualitative gap in their understanding vis-à-vis that of the experts themselves. This step, and the next one — to build the model — show how these experts proactively employ strategies to close this gap. This incident demonstrates that, in participatory planning projects or public engagement exercises in general, there is still an important role for experts to communicate technical information in a way that non-experts can understand within the frame of their local context and their own way of knowing.[89]

Of course, there remain points of slippage and friction between these non-local experts and non-expert locals, such as the minor kerfuffle over the collective housing proposal. The PRP experts from Kobe had not fully appreciated the importance of spacious houses to people in this *honke-bunke* culture. Likewise, the importance of the endemic local practice of growing one's own vegetables seemed to escape the ken of the experts from Kobe — for a while. At least initially, even if they were aware of this practice, they did not appear to appreciate its importance in people's lives, both as a source of food and as an activity whose mundane rhythms helped to shape the structure of seasonal and daily life. Indeed, working in the garden also furnished a

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addition to — its effectiveness as a physical model), or whether it was related to the fact that the model was simply the *n*th attempt in a series by Nozaki's group to convey a particular message to the residents. Regardless of the specific reason(s), its deployment by the Kobe team demonstrated their awareness of a "comprehension gap," their determination to close it, and their creativity in attempting to do so.

89. Michael Lynch observes perceptively that a significant difference between these PRP meetings and the policy-oriented, deliberative engagement "exercises" often described in PES literature (typically with a focus on emerging technologies) is that these PRP meetings "are not abstracted from the immediate, lived situations of the residents. They have a stake in the game." (Personal communication with author, October 2013.) In that sense, Tōhoku's residents are closer to Wynne's sheep farmers or Epstein's AIDS patient-activists than to participants in consensus conferences or other deliberative exercises. Cf. Horst & Irwin (2010).

"natural" form of outdoor physical exercise for the many elderly residents, as well as providing opportunities for socialization with neighbors and passersby. At first, the PRP experts from Kobe did not appear to consider this practice at all. For example, in March 2012, Takasago was working on a flower-planting project as one of his residential support activities, but he had not considered incorporating the planting of vegetables in his project. During Kobe's recovery from the Great Hanshin-Awaji Earthquake, flower planting had brought color and hope, and opportunities for socialization, to the lives of local people,[90] and Takasago was applying his Kobe experience to his volunteer activities in Tōhoku. Although a laudable project, had Takasago been more aware of the local culture, he might have reasonably been expected to modify his project to include growing vegetables as well as flowers. Furthermore, the initial plans for the new subdivision for residential relocation included no provision for vegetable plots.

Now, however, current plans do call for the acquisition of an additional parcel of land expressly for the purpose of growing vegetables. Furthermore, by the summer of 2012, Takasago had indeed modified his flower-growing project to include vegetables. What prompted these revisions? I would suggest that these changes point to the value of yet another strategy employed by these PRP experts: local residency and immersion. Takasago himself had moved his residence from Kobe to Kesennuma in late 2011. While experts like Nozaki were doing the long commute back and forth between Kobe and Tōhoku once or twice per month, Takasago was living in the disaster zone, becoming increasingly familiar with local conditions, people and culture. The changes in his volunteer activities as well as the group relocation plans reflect this gradually increasing local familiarity.[91]

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90. Edgington (2010), Amakawa interview (February 2012).
91. Takasago interview (February 2013).

If Kobe's recovery represents a kind of ideal case in which the consulting experts are already locals through and through, then a reasonable strategy for simulating this condition is by having the consulting experts physically relocate to the recovering region. Indeed, scholars have written about the value of this strategy in other contexts. For example, Tetsu Sato, of Japan's national Research Institute for Humanity and Nature (RIHN), has extensively investigated the use of this strategy for local environmental management.[92] In his Integrated Local Environmental Knowledge (ILEK) project, he has embedded "residential experts" in various communities around Japan, each dealing with its own unique set of environmental issues. The experts reside within those communities for an extended period of time — two or three years, or even longer. Sato has found that, compared with occasional visits, such experts are, unsurprisingly, able to form much stronger social bonds with local residents and, crucially, establish mutually trusting relationships.[93] Furthermore, Sato says that they are able to achieve a deeper understanding of the "technical" issues facing the community (that is, the "biological ecology" or "environmental science" aspects) and how these issues interrelate with the of local culture and the social fabric of the community, which in turn provides opportunities for innovative and sustainable solutions rooted in (or at least compatible with) local ways of living and knowing.[94] In the context of post-disaster recovery in Kesennuma, Takasago has become one such "residential expert."

In conclusion, this discussion of the process of participatory recovery planning in Tadakoshi and other districts of Karakuwa and Kesennuma, with a particular focus upon the roles and strategies of non-local recovery planning experts from Kobe,

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92. Sato (2012), Sato interview (September 2012).
93. Cf. Chapter 5, on trust-work.
94. Sato interview (September 2012).

portrays less a "lay/expert divide" than a *convergence* — a site of interaction and cooperation between reflexive actors who are aware of their knowledge gaps and who earnestly engage in mutual, collaborative learning to address those gaps and accomplish collective goals. In short, in the context of participatory recovery planning, the streams of local and expert knowledge are not parallel; they converge and mix. The important question for STS and PES scholars, then, is not why this group can't understand that group's form of knowledge, but rather: through what practices and strategies does knowledge move, merge, circulate and transform among different social and epistemic communities?[95]

This dissertation has described a number of such concrete practices in Chapters 2, 3 and 4. Chapter 5 will continue by focusing in more depth upon the nature of the role played by facilitating PRP expert-consultants; borrowing from recent scholarship in STS and PES, I will call this the role of "engagement agent."

95. And further: how do these communities, characterized by diverse interests, positions, social identities, and embodied experiences interpret and hash out their differences?

5: ENGAGING *ENGAGEMENT AGENTS*

> We [experts] probably know better than regular people about building towns, because even if each community is only rebuilt every 100 years, say we build 100 communities, that means once a year, so we have a lot of experience dealing with different choices and unexpected incidents. But that does not necessarily mean we can get consensus [from citizens]. After all, the important point for them is not whether or not a plan is good, but rather their impression of the person who presents the plan. For example, if the person truly cares about the residents or not, if the person doesn't listen to others, or just gives orders. Residents often object to plans for those reasons.... If we do something without the confidence of the people, then even if it is "technically correct" based on planning principles or theory, it is totally pointless if they are unhappy with it.
>
> — Ikuo Kobayashi[1]

5.1: Constructivist concepts and liminal liaisons: introducing "engagement agents"

In a sense, the field of STS has been concerned with the interface between experts and nonexperts from its Kuhnian beginning. Some of the foundational studies in the field argued persuasively that new knowledge and expertise are coproduced.[2] In this view, propositions only become "fact," or accepted knowledge, through a social process in which their "facticity" is authorized by key constituencies of people, including those previously recognized as experts, as well as perhaps ultimately by the public at large. As a crucial part of this process, the proposition's sponsor must persuade these groups to recognize his or her own expertise. Here, "expertise" is understood to be not just a synonym for knowledge itself, nor an actor's imperfect possession of said knowledge, but also *a socially ascribed quality of epistemic authority*. In this

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1. Kobayashi interview (February 2012).
2. E.g., Latour & Woolgar (1979), Shapin & Schaffer (1986), Latour (1988).

sense, *accreditation* of "expertise" — that is, being recognized as a *credible* claimant to the mantle of "expert" — resembles being extended a line of *credit* by *key constituencies*, including, in some cases, putatively nonexpert publics. In a nutshell, the social ascription of expertise is the product of social adjudication of a claimant's *credibility*.[3] As with knowledge, theories of the social construction of technology (SCOT) also posit a similar social shaping of technological systems and artifacts (and their concomitant social infrastructures) influenced by processes of contestation among key constituencies or "relevant social groups."[4] Note that not all STS scholars subscribe to the notion of "expertise" as socially ascribed status; some treat it as synonymous with "knowledge and skills."[5]

The strain of STS literature associated with "public understanding of science" (PUS) and "public engagement with science" (PES) is largely defined by its concern with interactions between nonexperts and experts, as well as between experts of various disciplines, and how knowledge circulates among them. One theory regarding this inter-disciplinary realm draws upon the concept of "boundary work"[6] and particularly so-called "boundary objects," to explore how members of different epistemic communities communicate and manage to collaborate, despite each other's distinct forms of knowledge, through their interactions with mutually experienced but differently understood objects of inquiry.[7] In this framework, actors are more-or-less ensconced in their own socio-epistemic worlds,[8] and are able to glean partial but

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3. See also the discussion of "expertise" in Chapter 1 and the discussion of "credibility" in this chapter, below. Cf. Latour & Woolgar (1979), Shapin & Schaffer (1986), Shapin (1995a, 1995b).
4. Pinch & Bijker (1984), Kline & Pinch (1996), Bijker (1997), Bijker & Bijsterveld (2000).
5. Collins & Evans (2002, 2003, 2007), Collins et al (2010). See discussion below.
6. Gieryn (1983).
7. Star & Griesemer (1989), Fujimura (1992), Bowker & Star (1999), Star (2010).
8. Fujimura (1988), Clarke (1991, 1997), Clarke & Star (2008).

workable comprehension of more-or-less incommensurable regimes (i.e., other ways of knowing) through their mutual interactions with these boundary objects.[9] A boundary object "resides between social worlds... where it is ill-structured.... Groups that are operating without consensus tack back-and-forth between... [hermeneutic] forms of the object."[10]

According to this definition, the official plan for reconstruction of the Tadakoshi District, with its proposed levees, seawalls and elevated roadways, might be analyzed as such a boundary object. Nozaki's scale model of the plan, with its proposed massive construction set in glorious foamcore, crystalized consensus — a decisive "tack" toward a particular interpretation — by eliciting affective as well as cognitive harmony between the groups of PRP experts and non-expert residents. In many scholars' analyses, boundary objects are often used in conjunction with two other frameworks for analyzing "lay-expert" or inter-expertise communication and collaboration: "interactional expertise" and "trading zones."[11]

As part of their so-called "Third Wave of science studies," Collins & Evans describe how an actor from one epistemic realm is able to gain access to a different one by spending the effort to gain a higher level of the relevant subject knowledge.[12] In the Ur-example inspired by Collins's own work, a sociologist of science, who has "contributory expertise" in his own field, is able to achieve "interactional expertise" in the field of gravitational wave physics, enabling him to discuss the topic intelligently with professional physicists, and to understand it well enough to analyze that particular scientific community. Unlike many STS scholars, Collins & Evans "studiously bypass"

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9. Here, too, a debt is owed to Kuhn (1962, 1969), who first discussed the problem of *incommensurability* between different scientific "paradigms" or "disciplinary matrices."
10. Star (2010), p. 604-605.
11. E.g., Gorman (2010), Balducci & Mäntysalo (2013).
12. Collins & Evans (2002, 2003, 2007), Collins et al (2010).

the notion of expertise as ascribed status, instead using the term somewhat synonymously with "knowledge and skill" or "know-how."[13] Their typology might be described as socio-instrumentalist: it categorizes expertise not just according to an abstract standard of measurement, but by the kinds of work that its possessor can do with it, vis-à-vis groups defined (somewhat circularly) by shared expertise. Thus, "interactional expertise" allows one to interact competently with members of a field, while "contributory expertise" enables an actor to contribute new knowledge to another field. While the framework does not proscribe an actor from achieving contributory expertise in more than one specialty, it generally presupposes that each actor remains anchored to his or her "home" discipline.

It is possible to interpret the sharing and mutual learning by different groups of actors in Tōhoku as a collective effort to raise everyone's "interactional expertise" in fields of knowledge formerly unfamiliar to them — non-local PRP experts "gain expertise" in local knowledge, while non-expert locals "gain expertise" in PRP. In fact, since their collaboration has (literally) concrete consequences for the townscape and the future lifescapes of the residents — as well as the careers and legacies of the experts — it could be argued that everyone has attained "contributory expertise" of some kind. Yet this interpretation seems somehow unfaithful to the vision of Collins & Evans. Surely, the "Third Wave" framework *could* be adapted to the present case. However, it is unclear to me precisely how the present case would fit into that framework, or where exactly each group of actors would fall on the "periodic table of expertise." More to the point, a great deal of the qualitative differences between

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13. Thanks to Michael Lynch for calling my attention to this point. "Studiously bypass" is his phrase. The irony is that the ascribed social status/constructed credibility aspect of expertise seems to be implicit in the concept of "interactional expertise"; if established experts in a technical field to which an actor aspires to gain purchase judge that actor as incompetent, then by definition he or she cannot be said to have "achieved" interactional expertise.

different kinds of experts and forms of expertise are elided by that system of categorization, which, as noted, focuses upon a narrow conception of expertise as knowledge and skill. For example, different experts may exhibit distinct forms of reflexivity, or use different strategies for constructing credibility. Such differences are disregarded by the Third Wave framework. Thus, while it is probably possible to describe the present case in terms of that framework, it is unclear what would be gained, while qualitative traits would be lost from the account. Moreover, the need would remain for a more detailed and specific explication of how the processes of mutual learning and knowledge exchange actually take place, and how to characterize the distinct role(s) of each group of actors.

Galison's theory of "trading zones" compares sites of interdisciplinary exchange to those bazaars and outposts at which representatives of diverse cultures, markets, and commercial concerns have historically come together to engage in commerce and cultural interchange. In such locales, linguistically heterogeneous traders develop a shared language — "first a shared jargon, then a pidgin, and finally a creole"[14] — in order to facilitate translation and communication so that they may conduct their business.[15] In the context of inter-disciplinary interaction, eventually a new discipline may emerge from the trading activity carried on in a particular locale, along with its corresponding creole.[16] Evidence from *machi-zukuri* and PRP activities in Tōhoku provides some support for the "trading zone" thesis. Though new grammars or lexicons are not being generated, each group seems to be learning the others' vocabularies, resulting in a post-disaster recovery patois more frequently laced with

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14. Galison (2010), p. 80.
15. Galison (1997, 1999). Collins, Evans and Gorman (2007, 2010) have further developed Galison's "trading zones" in conjunction with their own notion of interactional expertise. Cf. Gorman (2002, 2010), Gorman et al (2009).
16. Galison (1997, 1999, 2010).

terms related to the human and socio-technical aspects of recovery than standard Japanese speech — such as *kokoro-keah* ("heart-care"), *takadai-iten* ("relocation to high ground"), or *bōsai shūdan-iten* ("group relocation for disaster risk reduction"). At the same time, the scope of the recovery, and the impact of the events of 3.11 on Japanese society as a whole have been so profound that some of these terms have become a not-infrequent topic of conversation across the archipelago. On the other hand, is this activity giving birth to a new discipline analogous to the scientific disciplines Galison describes? Galison's framework implicitly postulates a kind of symmetry among each of the "traders" — they all contribute to — and gain from — the constitution of the new discipline roughly equally. While both residents and Kobe-based experts contribute to PRP processes in Tōhoku, it would be inaccurate to say that all of them are becoming experts in a new form of PRP. Residents and PRP experts are engaged in mutual, collective learning and collaboration, but for the residents this is largely a "one-off" experience, whereas the experts are using the experience to augment and consolidate their existing "expertise" (*qua* both "know-how" and credibility status) in participatory recovery planning.

Would it be possible to analyze PRP in Tōhoku (and indeed elsewhere) as a kind of "trading zone" wherein collaboration coalesces around "boundary objects" and different groups of non-local experts and non-expert residents accomplish this collaborative work through the achievement of interactional expertise and the use of *ad hoc* pidgins and other forms of "translation"? Perhaps a more fruitful question would be to ask what would be gained through such an analysis. Undoubtedly, the answer to this latter question will vary with each analyst's case and particular objectives. Although this trio of approaches offer intuitively sensible ways of understanding the overall process of collaboration in general, they do not offer the analyst much traction or guidance for differentiating the roles of particular actors vis-à-vis their counterparts in

particular cases. For example, in spite of Collins & Evans's efforts to deal with "the contents of expert knowledge,"[17] conceptually their "Third Wave" framework is heavily abstracted from existential issues such as social identity and the situated character of interaction among embodied and socio-historically embedded actors, the crucial relevance of which, for the case of PRP in Tōhoku, I have tried to emphasize throughout this dissertation. Moreover, it begs questions that it leaves unanswered. For example, how do actors achieve interactional expertise aside from the idiosyncratic application of individually cultivated skill, pluck and luck? The framework leaves open questions about how procedures for institutionalizing (the achievement of) interactional expertise might be created — as Kobe's PRP experts appear to have done — and what those procedures might look like. Do the STS and PES literatures offer any other alternative conceptual frameworks for gaining insight into the PRP process in Tōhoku, and the specific role(s) of Kobe's PRP experts in particular?

As it happens, in the tradition of theoretical constructs that inhabit inter-disciplinary and liminal epistemic spaces, several scholars have recently proposed a new concept for understanding certain kinds of guided interactions between experts and nonexperts:[18] *engagement agents* (EA's).[19] This was first mentioned somewhat briefly by te Kulve & Rip as they tried to articulate the function of a particular role within their Constructive Technology Assessment (CTA) framework for guided, policy-oriented, multi-stakeholder deliberation of science and technology. They describe engagement agents as "individuals and organizations orchestrating engagement activities, who are not immediate stakeholders or [are] otherwise seen as impartial."[20]

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17. Collins & Evans (2002).
18. It bears repeating that who counts as an expert and who as "lay" depends upon context and the form of expertise, or rather know-how, in question.
19. te Kulve & Rip (2011), Conley (2011).
20. te Kulve & Rip (2011), p. 701.

In a response piece in the same journal, Conley seized upon the term and immediately began to exploit it as a concept that could be productive beyond the context of CTA. She describes EA's as actors who are "able to move between multiple dimensions, or 'levels' of research, innovation, and policy processes," and "possess the knowledge and capacities to forge 'novel linkages' between the oftentimes disparate terrains of science, politics, and policy."[21] These authors further emphasize that a crucial EA role is instigating and guiding the reflexivity of other actors, be they scientists and engineers working in the lab, or an array of stakeholders participating in "engagement activities." Broadly, as it is presented in these two papers, an "engagement agent" is an individual actor who commands "interactional expertise" in several epistemic realms, including one or more technical disciplines, as well as familiarity with relevant social contexts (e.g., knowledge of the communities within which a particular technology will be deployed). In addition, the engagement agent should be able to "orchestrate" the process of engagement itself, including conducting "pre-engagement preparation" prior to the commencement of "engagement activities." In short, the peculiar expertise (i.e., special know-how) of engagement agents is in the facilitation of engagement itself, including the encouragement of reflexivity by all participants (where "engagement" is understood to include exchange between different kinds of experts and knowledges, or between experts and non-experts, and "reflexivity" is understood roughly to comprise critical self-awareness and interrogation of one's own partial perspective and circumscribed way of knowing).[22]

The concept of the "engagement agent" thus provides a useful term for describing a particular kind of actor playing a crucial intermediary role in inter-disciplinary and expert/nonexpert spaces of interaction. Whereas "boundary objects"

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21. Conley (2011), p. 715.

22. Though in Conley's version, this interaction may be indirect, as will be described shortly.

are material or symbolic artifacts at the edges of — and held in common by — different epistemic regimes, and whereas actors with "interactional expertise" belong to one such regime but are able to purchase access to others through enhanced knowledge, *engagement agents* are expressly and primarily liminal liaisons — actors whose primary function is to occupy the intermediary spaces and facilitate communication across borders. Though perhaps not "obligatory," they function as human "passage points."[23] They are translators, or perhaps more precisely, *interpreters* of knowledge from one epistemic regime to another, as well as practical "orchestrators" of engagement activities involving diverse stakeholders.

In te Kulve & Rip's account, such agents are mainly understood to be STS and PES scholars like the authors themselves. They focus their discussion on the roles of EA's within the CTA context, wherein their primary goal is "to enhance actors' reflexivity within the overall development of technology.... Thus, processes of technology development and their embedding in society will become more reflexive."[24] The authors note that for EA's to achieve this goal effectively, they must prepare for engagement exercises in a crucial "pre-engagement" phase. The authors outline four "requirements for pre-engagement activities."

1. "[U]nderstanding... the emerging science and technology and its dynamics, especially the various expectations and emerging/partial path dependencies...."
2. "[T]o assess actor's [sic] propensities to anticipate future societal embedding of new technologies... and to coordinate their activities with those of other actors."
3. "[T]o select and locate actors, which is linked to the envisaged orchestration of interactions during the engagement."

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23. Cf. Callon (1986).
24. te Kulve & Rip (2011), p. 701.

4. "[B]roader developments that may not always be visible to the various actors have to be taken into account," including "the role of parties which are not directly involved in technological developments and their embedding in society, but which may still exert influence."

With an eye toward adapting the concept of engagement agents for understanding the peculiar roles of a class of experts specializing in the facilitation of participatory processes, epitomized by Japan's PRP experts, I interpret these requirements broadly (although not with a 1-to-1 correspondence) as entailing the following characteristics:

1. EA's understand ("have some expertise in," vernacularly speaking) both the "technical aspects" and the potential sociotechnical "impacts" of the technoscience under consideration.
2. EA's learn and make judgments about the capacities and "propensities" of relevant actors.
3. EA's coordinate the engagement-related activities of disparate actors.
4. EA's perceive which actors are "relevant" to the engagement process — as real or potential influencers, or as potentially affected by the process or by the technoscience under discussion — and make attempts to enroll as many of them in the process as possible.
5. EA's proactively seek awareness of the broader socio-historical context of the engagement exercise and the technoscience at issue.

Although te Kulve & Rip summarize the social identities of EA's as those "who are not immediate stakeholders or [are] otherwise seen as impartial," I interpret this to be an implicit requirement for *credibility* and *trustworthiness* rather than impartiality *per se*.

The focus of te Kulve & Rip's exposition is upon the practice of "pre-engagement" preparation; they conceptualize "engagement agents" as those actors

who perform this preparation and subsequently "orchestrate" engagement exercises. They employ the metaphor of "upstream" engagement and emphasize the need for "early engagement, which is full of unknowns," rather than "late engagement, when socio-technical developments are already entrenched."[25] The function of "pre-engagement," then, is to "mitigate" the potentially deleterious effects of the uncertainties around putatively inchoate technoscience in the engagement process. However, the notion of "pre-engagement preparation" performed solely by specialists (EA's) raises a critical question. The pre-emptive timing of "pre-engagement" before "early engagement" offers the opportunity for EA's to exert undue influence on the framing of the engagement exercise, its process and ultimately its outcomes, potentially undermining its very purpose. Although the authors fail to address this question explicitly, the care with which they describe the requirements for EA's and for preparatory activities may, perhaps, be taken as an implicit response to the conundrum.

In her commentary on te Kulve & Rip, Conley might well have pressed them on this point. Instead, however, she seizes upon the "engagement agent" concept as an analytically powerful category, applying it to the framework of Socio-Technical Integration Research (STIR) developed at Arizona State University. In the STIR context, engagement agents play ostensibly a rather different role than in the context of CTA deliberation exercises. In Conley's account, EA's are "embedded humanists" working alongside scientists and engineers in the laboratory, exchanging information and prompting mutual reflexivity through quotidian close contact and in-depth discussion.[26] As in te Kulve & Rip's conceptualization, Conley's EA's are also primarily STS scholars like the author. The basic idea of the STIR approach is to encourage the

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25. te Kulve & Rip (2011), p. 700.
26. Conley (2011), p. 718. Cf. Fisher & Mahajan (2010).

producers of new knowledge and new technologies to reflexively consider and discuss potential social and ethical ramifications of their work, including users and other actors who may ultimately be affected by their technoscientific products. Thus, whereas te Kulve & Rip's EA's function as orchestrators, facilitators and liaisons between technical experts and non-expert CTA participants, Conley's EA's function more as proxies or representatives of stakeholders who otherwise cannot access the laboratory. As instigators and facilitators of "endogenous reflexivity,"[27] they effectively become liaisons between scientists and engineers, on the one hand, and various stakeholders, publics, and society at large, on the other.

Neither Conley nor te Kulve & Rip go so far as to expressly prescribe or proscribe which actors can play the engagement agent role. Both papers present the role as being played primarily by STS and PES scholar-practitioners like the authors themselves; STS and PES (née "humanist") "expertise" is positioned as especially, perhaps uniquely, capable of liaising between "technoscience" and "society." On the face of it, this is an interesting move, for proponents of "public engagement" to advocate for scholars like themselves to become intermediaries, of sorts, between the public and the scientific and technological experts with whom they are to engage. As liaisons and promiscuous representatives (i.e., willing representatives of any and all relevant social groups), the EA's presented by Conley and te Kulve & Rip may give voice to certain concerns and constituencies that otherwise might struggle to be heard; still, a re-presented voice is a captured, mediated voice.[28]

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27. Both papers appear to subscribe to the notion of an internal/external divide between technoscience and "society."

28. If the target of interventions such as CTA and STIR is a kind of *technocratic* process of research and development and public policy-making, should we call the scholar-practitioners of CTA, STIR and related programs *sociocrats* — or, perhaps, *anthrocrats*? In fact, whereas early PES scholarship comprised primarily critique, since the late 1990s a number of PES scholars, particularly in Europe and the UK, have, with official support, pursued a kind of participatory action research (PAR) by experimenting with new (and

Regardless, te Kulve, Rip and Conley argue that EA's fundamentally catalyze the engagement process, enhancing its value and effectiveness and helping to ensure that all participants of "engagement exercises" — be they consensus conferences, CTA exercises, or discussion at the lab bench — cultivate reflexivity and contextual awareness, the better to understand the stakes involved for multiple stakeholders as well as the full range of perspectives, expert or lay, of relevant constituencies.

Thus, in spite of some differences between Conley's "embedded humanists," te Kulve & Rip's engagement-orchestrating actors, and the PRP experts described in this dissertation, I argue that, when appropriately construed and conscientiously adapted, the *engagement agent* concept provides a uniquely apropos category for conceptualizing the commonalities between these otherwise disparate groups of actors.[29] My argument is not simply that the rubric of "engagement agent" may be used to describe the work

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old) forms of engagement and deliberation, and then analyzing and critiquing these experiments. As Fisher (2011) notes, "engaged scholars in science studies have sought to design and conduct exercises aimed at better attuning science to its public contexts," thereby increasing "the prospects for insights from science studies to contribute to policy agendas and institutional capabilities." In addition to CTA, its derivatives, and STIR, these interventions have included, for example, interactive public kiosks for science communication (Horst, 2011; Lewenstein, 2011), participatory mapping exercises (Yearley, 2000, 2006), consensus conferences, and guided public deliberation (Irwin, 2006, 2012; Horst & Irwin, 2010). On the one hand, proceeding beyond critique to material action appears to be a logical and positive step for a field that has always been fueled, to a degree, by normative concerns for just and democratic governance of technoscience. On the other hand, when this kind of "engaged scholarship" is staked upon a notion that privileges STS "experts" as uniquely qualified to mediate "lay-expert" interactions and to facilitate "public engagement" endeavors through "preparatory" decision making, framing questions, or representing publics, scholars are treading upon dangerous ground; such activities and rationales start to resemble the practices and justifications that have received the brunt of their criticisms for decades. Cf. Lynch (2009).

29. Here is an additional, important difference. The STS scholar-EA's described by Conley, te Kulve & Rip seem able to play their role in a variety of circumstances, provided they "achieve" interactional expertise in the relevant field of technoscience. Their "expertise" vis-á-vis "society" or various publics seems to be largely universal and portable — a function of their training as scholars in STS. PRP experts, on the other hand, are not likely able to function as EA's in realms beyond participatory interventions in the built environment. Their know-how *qua* engagement agents is rooted to their specific training and experience, and probably, to some degree, to place and culture as well.

of the Kobe-based PRP experts facilitating *machi-zukuri* processes in Tōhoku. Rather, by exploiting the analysis of PRP experts as an exemplary "use-case," I argue that this category describes an entire class of putatively "technical" specialists, largely downplayed by the dominant PES narrative of congenitally context-blind experts, whose peculiar expertise comprises the "reflexive" and context-sensitive facilitation of participatory processes, multi-stakeholder deliberation, and public engagement. PRP experts may epitomize this class, but are by no means its only members. By giving them a name, assigning them to a category flexible and adaptable enough to be fruitfully applied in a variety of contexts yet specific enough to capture their essential skills, norms and practices, I hope to encourage further analysis of engagement agents — and further cultivation of EA's themselves, and the participatory processes they shepherd.

Toward that end, this chapter re-examines the practices of PRP experts *qua engagement agents* within the context of participatory recovery planning, revisiting some practices described in previous chapters and considering additional examples. The chapter aims to make two specific contributions to building a deeper understanding of engagement agents, how they work, and who they are (or can be). First, it suggests that interpersonal trust is absolutely crucial to credibility for an EA, especially in the PRP context. Thus, PRP experts who are EA's assiduously work to establish trust through a set of practices that I gather under the rubric of *trust-work*. These practices include the selective and judicious sharing or withholding of information, the management of social identity,[30] and "face-work," in the sociological senses of both Giddens and Goffman. Second, in contrast to the work of Conley and te Kulve & Rip, this chapter refocuses attention on the roles and knowledges of non-expert publics in participatory

30. Social identity is most forcefully articulated by Wynne (1996) as critical to expert credibility (or lack thereof) in the eyes of "lay" publics.

engagement, expanding the pool of actors able to play the role of engagement agent beyond STS scholars and reflexive technical experts to also include non-expert, local residents themselves.

5.2: *Trust-work*, expertise, and the social politics of engagement

The issue of trust is a significant, constantly resurfacing theme of STS and PES literature, particularly in studies concerned with the social construction of expert authority, the democratic governance of technoscience, and the relationship between technical experts and the non-expert public. Nevertheless, I was still struck, in the course of my fieldwork, by the degree of concern and the amount of attention given by PRP experts to establishing and sustaining trusting relationships with patrons (i.e., officials) and, especially, clients (i.e., residents), and by the frequency with which the issues of trust and credibility arose in general.[31] In chapter 1, for example, Nozaki pointed out the difficulties he encountered in Kobe because his group's lack of official accreditation became a barrier to trust with potential clients. Likewise, residents expressed skepticism about the motivations of PRP experts (q.v., Ch. 3: "for them, this is a business") and official planners (q.v., Ch. 4: "this is about their vested interests"). Though such remarks were fleeting, taken as a whole, and considering some of the breakdowns in trust even between different groups of *hisaisha*, the overall pattern indicated actors' constant running assessments of other actors' trustworthiness and credibility, perhaps heightened in their relatively vulnerable post-disaster state.

Meanwhile, PRP experts' activities often seemed aimed, at least partially, at cultivating residents' trust. *Nomi-nication*, for example, helped to strengthen interpersonal relationships while also providing a safe space for sharing information and learning about local customs, culture and social gossip. Indeed, many practices seemed to do "double duty" in a similar fashion, such as Nozaki's private "hearings" with individual couples or Takasago's decision to relocate to Kesennuma, both

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31. Most likely I was sensitized to this issue because, as a researcher coming in from a foreign place, with foreign academic training and a foreign linguistic tradition, I, too, was often consciously concerned about cultivating trusting relationships with actors.

described in Chapter 4.

The praxis of cultivating trustworthiness and credibility — *trust-work* — is crucial to PRP experts for three reasons. First, it is essential to establishing and sustaining their *credibility* as "technical" experts — that is, those who provide guidance for recovery planning by sharing and enacting their specialized knowledge of such fields as the built environment, legal and institutional requirements for reconstruction, or specific procedures for conducting *machi-zukuri* processes. This is the "expertise" sought by Onodera in Chapter 4. Second, trust-work is equally essential to establishing and sustaining their credibility as *engagement agents* — that is, experts who facilitate participatory planning processes (*machi-zukuri*), liaise with various relevant stakeholders (such as residents and officials), and help to contextualize the technical and local knowledge implicated in these processes.[32] I suggest that both of these reasons generally apply to all engagement agents. Third, because EA's operate as *moral agents* on behalf of their clients, who must trust that they will act in good faith for the benefit of their community, eliciting favorable judgments of their moral trustworthiness and ethical responsibility is crucial. For this reason, trust-work is especially important for EA's dealing with particularly risky products of technoscience or with particularly vulnerable publics. The post-disaster context is one in which *hisaisha*, especially, are in a state of heightened vulnerability and sensitivity to risk.

Note that the following discussion of specific *trust-work* practices is not intended to be exhaustive. I cannot express the reasons for this better than Shapin:

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32. I argued in Chapter 4 that, for PRP experts such as Nozaki, there is little meaningful distinction between the first two forms of expertise described above. However, others, like Onodera or engineers and planners working for government agencies and general contractors, do see them as distinct.

> The procedures for establishing truthfulness are inchoate; they are not formalized; and, perhaps, they are not formalizable.... In principle, there is no limit to the considerations that might be relevant to securing credibility, and therefore, no limit to the considerations to which the analyst... might give attention.... Any aspect of the scene in which credibility is accomplished may prove to be relevant, and the relevance of nothing can be ruled out in advance of empirical inquiry.... [Therefore,] the description or explanation of credibility has got to specify the credibility *of what* and *for whom*.[33]

To that I would add the possibility of specifying the credibility *of whom* and *for what*. Thus, the following account of concrete practices will rely upon empirical details to satisfy these conditions of specifying the particular uses of credibility and trust-work.

5.2.1: Trust, credibility, and the construction of expert authority

STS scholars have argued that "[s]olutions to the problem of knowledge are solutions to the problem of social order."[34] Thus, "a matter of fact" is effectively "both an epistemological and a social category."[35] That is, the facticity of knowledge and the epistemic authority of experts are not, in practice, established through an objective and epistemologically privileged "scientific method," nor through an unambiguous and irrefutable "logic of scientific reason," nor through a uniquely self-correcting and ever-improving system of peer review, with expert checks and balances on specific knowledge claims. Rather, knowledge and epistemic authority are "constructed" through processes that are thoroughly *social* in nature, entailing contestation, negotiation, persuasion, and multiple instances of contextualized human judgment.[36]

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33. Shapin (1995b), p.259-261; italics in the original.
34. Shapin & Schaffer (1986), p. 332.
35. ibid., p. 25.
36. Although the character and boundaries of "the social" are a matter of some debate. The Actor-Network Theory (ANT) school, for example, is leery of the term "social" because of its assumed reference to human society, and essentially argues for the inclusion of "non-

Scholars have argued that foremost among these judgments are appraisals of *credibility*: "The individual's belief [does] not become collective — and so part of knowledge — until and unless it [has] won credibility. No credibility, no knowledge.... So... insofar as we are concerned with scientific knowledge, credibility should not be referred to as a 'fundamental' or 'central' topic — from a pertinent point of view it is the only topic."[37] As for how credibility is "won," scholars have described a number of processes of "social construction" and numerous frameworks for understanding them. As mentioned previously, a concept often invoked in such accounts is the notion that key constituencies (or "relevant social groups") arbitrate knowledge claims, judge the credibility of claims to "expertise," and shape the forms, uses and meanings of technologies.[38] Of course, such constituencies do not themselves have access to anything like an objective "answer key" regarding the absolute truth (or falsity) of a particular knowledge claim or the expertise of a particular claimant. Instead, they make judgments about the *credibility* of both knowledge claims and their claimants. They appraise "the worth of knowledge by taking into consideration the moral constitution and known probity of its producers."[39] In other words, when scientists or technical specialists are recognized as experts — are invested with that particular brand of authority called "expertise" — it is because certain constituencies have decided to *trust* them and their respective judgments about the credibility of knowledge claims and expertise.

For example, the pioneering scientist and experimentalist Robert Boyle and his colleagues in the nascent Royal Society established "matters of fact," in part, through

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humans" (including technologies and "natural" entities) in an expanded notion of a "collective" (Latour, 2004).

37. Shapin (1995b), p. 258-259.
38. E.g., Pinch & Bijker (1984).
39. Shapin & Schaffer (1986), p. 130.

the strategic deployment of "a *social technology* that incorporated the conventions experimental philosophers should use in dealing with each other and considering knowledge-claims."[40] Such conventions included conducting oneself with sobriety and modesty; reporting experimental failures as well as successes; communicating in a simple, straightforward, workman-like style; and eschewing the petty and polemical pursuits of ideology, dogma and personal animosity. In short, Boyle presented his arguments and evidence in the manner of a trustworthy gentleman in 17th Century England. This contributed crucially to his success in establishing his claims about the physics of vacuums (among other phenomena) as credible, and concomitantly establishing himself as a credible knowledge claim-maker — what we might now call an "expert" in his field.[41]

As a negative example, four centuries later the unconventional media strategy of "cold fusion" pioneers Pons and Fleischman — announcing spectacular findings through multiple channels, not only through a peer-reviewed journal but through mainstream media as well — damaged their credibility in the eyes of their physicist peers. Pons and Fleischman's seemingly hasty, attention-seeking behavior was unbecoming of credible scientists, and it raised questions about their motivations as well as the thoroughness of their methodology.[42] For some time subsequently, their case (like Boyle's) produced uncertainty and contention around what counted as credible evidence for natural phenomena such as cold fusion. Ultimately, they lost credibility in the eyes of most of the public, and their "discovery" was subsequently relegated to the dust bin of so-called "pathological science."

In the aftermath of Chernobyl, some UK government-aligned soil radiation

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40. ibid., p. 25. Italics in the original.
41. ibid.
42. Lewenstein (1995).

physicists lost credibility with the sheep farmers of Cumbria, Wales, in part because they failed to make any attempt to tap into local knowledge, and they did not interact with the locals on anything other than a superficial level. This failure did more than limit their knowledge of local conditions and thereby cause their predictions to be inaccurate and their advice ill-suited to the farmers' lives; it also rendered them untrustworthy characters in the judgment of the local residents, who already viewed them skeptically as members of an urban, technocratic class willfully ignorant of the upland ways of life. This undercut the scientists' authority as "experts;" at least in Cumbria, the sheep farmers whose lives were most directly affected by their decisions refused to recognize them as competent and knowledgeable in their field — at least "in the field," outside of the laboratory and in real-world conditions, where, for the farmers, it really mattered.[43]

In short, STS scholarship demonstrates that even in relatively esoteric fields of science, establishing credible authority as an "expert" hinges crucially upon relatively mundane yet sophisticated judgments of reliability and trustworthiness by key constituencies, including previously established experts as well as publics, based on such putatively "non-technical" factors as social identity, norms of behavioral etiquette, and earnestness of purpose. The behaviors and practices of engagement agents (née PRP experts) in Tōhoku demonstrate that they are aware of such judgments, and they go to great lengths to manage the presentation of these factors appropriately. Inasmuch as they claim technical expertise in fields of specialized knowledge such as planning, architecture, or the legalities and procedures of recovery, their trust-work does "double-duty," establishing them as credibly authoritative experts as well as trustworthy liaisons and facilitators of participatory processes of engagement.

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43. Wynne (1989, 1992, 1996).

5.2.2: Risk, trust-work and "face-work"

Both Luhmann and Giddens argue that trust is inextricably linked to conditions of risk.[44] That is, one chooses to "trust" another person (or, say, a technology) only in circumstances in which one stands to lose something of value — and in which one is somewhat aware of that very possibly. Without the risk of loss, there is simply no need for "trust." When things are functioning "normally" and assumed to be dependable without a second thought, or even a first doubt, Luhmann describes this as a state of "confidence," which is more automatic, less deliberate and less anxious than the risky state of entrusting one's assets (life, career, money, afternoon) to another entity, human or non-human. For example, a person walking across a bridge trusts the structure to hold, whereas when she reaches the other side and proceeds along the road, paved upon the earth, she has confidence that it will not fall away beneath her. This does not mean that there is no danger whatsoever — it is not inconceivable that a sinkhole could unexpectedly open under her feet — but that at least the perception of risk is vanishingly small. Capturing this association of trust with risk, Sztompka defines trust as "a bet about the future contingent actions of others."[45] Similarly, Garfinkel describes trust in terms of the expected actions of others, wherein those expectations are guided by social norms and game-like rules of proper behavior.[46]

Sztompka notes that targets of trust may include not only individual people (real as well as imagined) and technological systems, but also social roles, institutions

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44. Luhmann (1979), Giddens (1990, 1991).
45. Sztompka (1999), p. 25.
46. Garfinkel (1963). Cf. Shapin on credibility, which "arises in part from actors' *judgments* of risk and rewards, and from actors' beliefs about the credibility-economy into which claims will enter." (Shapin, 1995b, p. 266; italics in original.)

and organizations, and the social order as a whole.[47] Thus, an engagement agent may be trusted both as an individual and as an "expert in recovery planning," and may derive further trustworthiness from institutional affiliation — or suffer damaged credibility from the lack of such an affiliation. Sztompka, however, emphasizes that even trust in abstractions is fundamentally grounded in "the primordial form of trust — in people, and their actions."[48] Likewise, Giddens argues that public trust in the faceless, socially "disembedded" institutions of "modernity", including "expert systems" of knowledge and authority, depend — perhaps more than ever — upon face-to-face interactions, or "face-work," which he describes as a "re-embedded context of action."[49] Thus, while the actual *practice* of "face-work" itself may be nothing more than the mundane work of directly establishing and sustaining interpersonal relationships, as old as the social nature of *homo sapiens*, critically it "does the work" of establishing relationships between individuals, institutions, and systems of knowledge and authority.

Consider Nozaki. The Kobe *Machi-zukuri* Research Institute is his home institution, and he receives funding from Hyōgo Prefecture and the official blessing of Miyagi Prefecture to conduct his activities in Kesennuma. When he meets with local residents, he implicitly becomes the "face" for each of these entities. (And he implicitly derives some measure of credibility from their imprimatur.) By the same token, when he meets with government officials or with engineers from general contracting companies working with municipal planning departments, his role as a trusted facilitator of participatory *machi-zukuri* meetings with local residents implicitly positions him as a legitimate representative of the residents. I accompanied Nozaki and his team

47. ibid.
48. ibid., p. 46.
49. Giddens (1990), p. 80

to a number of these meetings. In some cases, particularly when meeting Reconstruction Agency bureaucrats at Kesennuma City Hall, little substantive was accomplished other than "face work." That is, discussions remained fairly superficial, on the level of basic status reports, and there was no real movement on solutions to problems. However, these meetings gave Nozaki and his team — and through them, the residents of the districts they represented — a regular presence in the offices of the officials. If nothing else, they made it known to the officials that the *takadai-iten* and *machi-zukuri* groups in those districts were moving forward with their projects, and the officials would need to take those efforts into consideration in their own decisions and policies. Engagement agents like Nozaki link citizens and individual communities to the larger project of recovery planning, to the various institutions involved in planning and reconstruction, to the class of PRP experts from Kobe, and to the body of knowledge and the ways of knowing and practicing espoused by those experts. "Face-work," in the Giddens sense, may thus appear mundane and ordinary, but, particularly as an essential strategy of engagement agents *qua* liaisons, a great deal of consequence hinges upon it.

Likewise, simply going to the *hisaichi* on a regular basis and interacting with people face-to-face at *machi-zukuri* meetings and elsewhere constituted face-work. Especially in this conservative, peripheral region of Japan with relatively unreliable transportation and communication infrastructure, just showing up, talking to people directly, and looking them in the eye served to sustain relationships; visiting regularly and reliably every month, regardless of the state of the recovery, demonstrated commitment. One resident told me, "[Nozaki and his colleagues] come here every month and talk to us directly. They are trying to help us and deeply understand us from our own point of view. I trust them completely. We are so grateful for their

efforts."[50]

Furthermore, a portion of engagement agents' trust-work comprises "face-work" in a different sense — that described by Goffman. His theory of "face-work" pertains to the notion of "face" in social interactions: saving it, keeping it, and the risk of losing it. It is "the positive social value a person effectively claims for himself by the line others assume he has taken during a particular contact."[51] Cultural scholars of East Asia have written extensively about the importance of face in Confucian societies. In Japanese, it is called *menboku* (面目). Ho, who asserts that "the concept of face is, of course, Chinese in origin,"[52] defines it as "the respectability and/or deference which a person can claim for himself from others, by virtue of the relative position he occupies in his social network and the degree to which he is judged to have functioned adequately in that position as well as acceptably in his general conduct."[53] This definition is beginning to verge on the notion of trustworthiness, in the sense that it relates to expectations accorded to an individual or a social position.

I need not delve into the rich details of Goffman's theory of "face"and "line" in order to make my point with respect to engagement agents. Rather, given that concerns for maintaining face inflect most human interpersonal interactions, and perhaps especially in East Asian cultures such as Japan, I want to argue that these concerns also manifest themselves — as Goffman's "face-work" — *within* the "re-embedding face-work," described by Giddens, as it is practiced by EA's as a key component of trust-work. In this context, the consequences of "losing face" potentially include a crippling loss of trust and credibility — as a technical expert knowledgeable

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50. Kikuta interview (May 2012).
51. Goffman (1955), p. 213. Cf. Goffman (1967).
52. Ho (1976), p. 867.
53. ibid., p. 883.

about the built environment, *machi-zukuri* procedures, and disaster recovery; as a liaison and representative in participatory processes; or as a moral agent entrusted to do what is best for the local community.

Because the post-disaster state of incipient recovery is redolent with risk and loss, both realized and potential, trust is a particularly important and valuable coin. Survivors of a major disaster have already lost a great deal, and many of them live in a precarious situation for years afterwards. In Chapter 3, I noted that Karakuwa villagers accustomed to growing their own vegetables and catching their own fish are now forced to buy food with cash at the very moment that many of them have lost their jobs and income. Resources in the *hisaichi* ("disaster zone") are scarce, and *hisaisha*, stuck in a kind of chronic "survival mode," are exquisitely sensitive to competition and other pressures (recall Katō's fears of the "vacuum" on the region's economy), as well as the potential for outsiders to exploit their situation by praying upon them or by aggressively competing for the torrent of reconstruction funds. Financially, socially and emotionally shattered, many *hisaisha* remain fragile and prone to personal tragedy. *Kodokushi* ("lonely death;" see Chapter 2) was a phenomenon born and named in the aftermath of the Great Hanshin-Awaji Earthquake.[54] As occurred in Kobe, in Tōhoku recently marriages and businesses have been failing, while alcoholism and suicides have been spiking.[55]

Returning to PRP experts' concerns with "keeping face," another example will serve to illustrate this issue. When I first began my research trips from my base in Kobe to Tōhoku, I always accompanied Nozaki's team or another group. By March and April of 2012 I was ready to interview residents directly, without the assistance or

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54. Otani (2010), Edgington (2010).
55. Otani (2010), Segawa (2012). This is especially the case with current and former residents of Fukushima Prefecture.

imprimatur of Nozaki or others. I had established relationships with some residents, who had given me their business cards with their direct contact information. Thus, I began to set up interviews on my own. Shortly after my first calls to individual residents, I was contacted by Takasago, the member of Nozaki's team who had relocated to Kesennuma. He was somewhat agitated that I was acting alone, without first coordinating with him or Nozaki. He insisted that I clear any interviews through them first. His primary argument was that this would mitigate any risks of upsetting the delicate relationship of trust between their team and the residents. He further argued that it would be advantageous to my research because they would be able to assist in selecting and setting up interviews with especially cooperative residents. I later discovered that he had spoken with one of the residents I was planning to interview, and the resident had told Takasago that he was somewhat nervous about talking to an American, as he had no confidence in his English and was unsure about my competence in Japanese. (Once I informed this individual that Michiyo would assist during the interview, he relaxed considerably.) Because I had been affiliated with Nozaki's group, and because I had knowledge of multiple districts with which they were working, Takasago was concerned that I might unintentionally cause them to "lose face" (Goffman) and thereby damage the relationship of trust with residents. This incident highlights the degree of concern exhibited by Nozaki, Takasago, and their colleagues for maintaining "face" with the residents who are effectively their clients. On the one hand, I was basically an outsider, beyond the control of the group. On the other hand, I had been treated as an insider at *machi-zukuri* meetings.[56] Therefore, residents might view me as a member of Nozaki's group. If I were to reveal

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56. E.g., Nozaki often asked me to make comments or give advice, as part of his approach of inviting each participant to contribute to the meeting. Later, I became officially affiliated with Kobe Machiken.

information inappropriately from other districts or residents, or if I were to act impolitely, or merely appear incompetent, I could damage the group's reputation and credibility.[57] Thus, my actions as a pseudo-independent researcher were viewed as a potential threat to their "face," to be managed. A loss of face would damage their trustworthiness and credibility, endangering the integrity of their relationships with residents. Without establishing and maintaining a foundation of trust, there could be no "professional" relationship and no recognition of their expertise. Indeed, in this context, "expertise" without trust is meaningless.

In short, trust-work is particularly important for engagement agents in a risky environment such as a post-disaster context, and two indispensable trust-work practices include the "face-work" of Giddens and Goffman, respectively.

5.2.3: The trust-value of shared experience and social identity

In February 2012, I accompanied Nozaki's team for the first time to a meeting of residents from a district of Kesennuma called Minami-Saichikawara. Although located in the southern part of the municipality, this is a fishing-centric village, like those on the Karakuwa Peninsula. The meeting I attended was held in the small community center of the temporary housing complex, a space about the size of (or even smaller than) the living rooms in many American homes.[58] About 15 people participated, almost half of whom were members of Nozaki's team. At the beginning of the meeting I introduced myself as a researcher from Cornell University, as usual. And as usual, I was welcomed with cordial respect and gratitude. In the course of the discussion during the latter part of the meeting, I mentioned that New Orleans is my *furusato* (故郷, "hometown"), the place where I was raised for most of my childhood.

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57. Q.v., the discussion on strategic management of secrets and information, below.
58. Q.v., Fig. 4-5 for a photo of this meeting.

Instantly, the room transformed. A wave of appreciative and understanding exclamations swept through the group. The residents smiled and nodded, and I heard remarks such as "Ah, so that's it!" and "So you understand." Their posture and body language visibly relaxed, and from that point on, the tone and atmosphere of the meeting shifted to one that was warmer, more open and intimate. Up to that point, my comments had been received with respect (and patience for my sputtering Japanese); when I spoke afterwards, the residents leaned forward in their chairs, evidently eager to hear my opinions.

Many times in my meetings and discussions with residents of Tōhoku I witnessed similar, if not quite as dramatic, reactions when I revealed my hometown, or when Michiyo revealed hers (Kobe). Although I was actually living in Kobe when Hurricane Katrina struck the Gulf Coast, by simple virtue of the fact that New Orleans — a *hisaichi* — was my *furusato*, my interlocutors perceived a shared experience of trauma and loss in a disaster. Even if I had not directly experienced the hurricane and subsequent flooding myself, people and places dear to me had been damaged and lost. This perception of shared experience as a *hisaisha* effectively made me part of an in-group with the local residents, and often made interactions easier and less formal than they probably would have been otherwise.

When I asked actors (residents, experts, EA's) how important is a shared history of disaster experience to a trusting, collaborative relationship, most said that, while it is a factor, it is just one of many. "At least, when I say I come from Kobe, they *understand*," said one PRP expert, about residents of Tōhoku.[59] They did not see it as sufficient to establish trust, and possibly not even especially significant. Nevertheless, my observations suggest that a perception of shared experience can be an important

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59. Tsuji interview (April 2012).

part of establishing trust. Whenever I witnessed Nozaki or other experts introduced to local residents as being from Kobe, the residents' body posture and facial expression visibly relaxed, a subtle change in body language that suggested a shift from cordial respect for an outsider to something more like an openly receptive attitude for a member of the same disaster-survivor "tribe." In this way, the perception of shared experience transmuted into a kind of shared social identity.

In contrast, when I have seen other outsiders introduce themselves (tourists, volunteers, or experts from elsewhere), they are often asked about their reasons for coming to Tōhoku. After all, because of its relative remoteness, this is not a region that one visits without conscious intention. However, visitors from Kobe are assumed to be involved in the region's recovery. Indeed, whether it was a sushi restaurant in April 2013 in Minami-Sanriku or a cake shop the following month in Kesennuma, for example, on more than one occasion when I told a new acquaintance that I had come from Kobe, my interlocutor followed up with a question along the lines of, "Are you here to support the recovery?"

Arakawa, the tea seller from Minami-Sanriku, told me about Ito, a small business owner from the Shin-Nagata district of Kobe, who came to Minami-Sanriku to share the lessons of his experience in revitalizing the businesses of his district after Kobe's earthquake. Shin-Nagata was one of the hardest-hit districts in Kobe, a relatively low income area near Takatori and Noda Hokubu that, like them, experienced extensive destruction due to fire. Like much of Tōhoku, Shin-Nagata had been undergoing gradual economic decline for some time prior to the earthquake. Kobe's City Hall saw the disaster as an opportunity to invest in revitalizing the area's businesses. However, as Ito told Arakawa, the city's planners made some critical mistakes that ultimately crippled the recovery of many businesses, especially in the

retail sector.[60] For example, they built multi-story shopping streets in which many shops were on the second or third floor of buildings; shops on the ground floor did fine, but most of the elevated shops failed to attract enough customers. Formerly, shops and residences in Arakawa's Shizugawa district were conjoined in the same buildings, with shops on the first floor and residences above. It was a pleasant area in which to walk about. The current plan in Minami-Sanriku separates the residences from the commercial area. Moreover, it would place retail shops such as Arakawa's well below the level of the highly elevated trunk roads, and Arakawa is convinced that their businesses will suffer as a result, not unlike Shin-Nagata's second and third floor shops. People on the roads will simply drive by.

All of this makes intuitive sense and may not require specialist knowledge or certain kinds of experience to understand in principle. However, Arakawa's trust for Ito, as a fellow shop owner who also struggled to reestablish his business in the aftermath of a devastating disaster, transformed Ito's warnings from an outsider's information about risk to an insider's knowledge of certain struggle. Their shared identity as shop-owning *hisaisha* gave Ito substantial credibility as a knowledge claim-maker.[61]

Shōgoro Hagiwara, a Kobe-based "business continuity" expert who has been advising small businesses in Karakuwa to aid their recovery, said that his experience of coming through the earthquake and long recovery of Kobe not influenced his career path but became the crucible of his in particular expertise. It also gave him confidence that, even with the considerable differences between Kobe and Tōhoku, this experience is something valuable that he can offer to his clients in Karakuwa. Moreover, he noted that his clients are receptive to his advice because of his

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60. Cf. Edgington (2010).
61. Arakawa interview (March 2012).

experience in Kobe and his shared social identity as *hisaisha*.[62]

The notion that considerations of social identity play an important role in actors' judgments of trustworthiness and credibility is not a new one for STS scholars, who have established that "trust and credibility are themselves analytically derivative of social relations and identity negotiation.... Beliefs and values are functions of social relationships and patterns of moral and social identification."[63] PRP experts and engagement agents also implicitly understand these principles, and manage their self presentation so as to maximize their benefits.

5.2.4: *Kizuna*, *bundan*, and the dangerous trust-work of navigating inter-group politics

A discursive movement that swept Japan in the aftermath of the disaster was an emphasis on the importance of *kizuna* (絆), "bonds" or social ties. Along with *ganbarō!* ("fight!" or "carry on!" or "hang in there!"), *kizuna* became one of the key watchwords of post-disaster Japan throughout 2011 and 2012, almost to the point of cliché.[64] It has been used as a rallying cry for volunteer groups and services, invoked in various news stories on recovery projects, and frequently attached to special recovery-related events, including those designed specifically to connect Tōhoku's *hisasha* with survivors of other disasters such as Kobe's earthquake.

Every January 17, the anniversary of Kobe's earthquake, a number of memorial services are held throughout the city, including a major one in a public park next to the City Hall. Each year people gather in the wee hours of the morning, constructing the giant numerals "1.17" from candles set in bamboo holders, and then

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62. Hagiwara interviews (May 2012, October 2012).
63. Wynne (1992), p. 300.
64. A word with similar meaning, *tsunagi* (繋ぎ), had often been invoked after the earthquake in Kobe.

fall silent at 5:46 AM, the time that the earthquake struck. Beginning in 2012, that large "1.17" has been accompanied by a smaller "3.11." Likewise, in similar memorial services held on March 11 throughout Tōhoku, the date of Kobe's earthquake is also so inscribed. In short, a veritable cultural movement to bring together the *hisaisha* of Tōhoku with their fellow *hisaisha* from around Japan — but especially Kobe — manifested itself broadly in media, public events and public discourse, under the popular banner of *kizuna*.

Also in January of 2012, I attended a public panel discussion on disaster recovery organized by Ikuo Kobayashi and Yoshimi Amakawa, held simultaneously in Kobe and Minami-Sanriku, linked by teleconference. *Kīzuna* between the people of Kobe and Tōhoku was the explicit theme of the event. Several days later, the Kobe *Machi-zukuri* Research Institute conducted its annual "Kobe *Ai* Walk" (*ai* or 愛, meaning "love," although spelled with Roman letters in this case), a kind of memorial *machi-aruki* through the Noda Hokubu, Takatori, and Shin-Nagata districts of Kobe. Participants this year included a number of guests of honor from Kesennuma, Minami-Sanriku and Ishinomaki, who gave speeches alongside Machiken's leaders Nozaki, Komori and Kobayashi — all featuring the theme of *kizuna*. Additional participants included local residents and *machi-zukuri* leaders, city and prefectural officials, journalists from major Japanese news outlets, and journalists from other countries. This event served much the same function for Kobe's PRP experts as the *fukkō juku* described in Chapter 2. By walking through the now-recovered districts and pointing out the fruits of their collaboration with local *machi-zukuri* groups, Machiken's PRP experts were able to perform for their patrons, clients and peers, and to make a public case for the effectiveness of their methods and the credibility of their expertise. By connecting their work in Kobe's recovered neighborhoods to their ongoing activities in Tōhoku, they could emphasize the importance of the *hisaichi*-to-*hisaichi*

connection of *kizuna* and the contemporary relevance of their work.

Some scholars have already critiqued this pervasive discourse of *kizuna*. For example, Akira Takagi, of Fukushima University, argues that while the ideal of the recovery has been *kizuna* (i.e., powering resilience by strengthening social ties and a sense of community), the reality has also been one of *bundan* (分断; division, separation). He argues that this is especially true in Fukushima prefecture, where whole towns or neighborhoods have been cordoned off from public access, due to the arbitrary whims of the wind direction in the days following March 11, 2011. Because of this, the prefecture's population is probably the most scattered of any of the other prefectures in the disaster zone. On top of that, there are those in the prefecture who were directly affected by the tsunami only, by radiation only, by neither, or by both. These differences, he argues, further amplify the considerable diversity that already existed across one of Japan's geographically largest prefectures.[65]

Journalists and other scholars have also reported on rising tensions among *hisaisha*, particularly along generational lines, that have emerged in *machi-zukuri* and recovery planning processes.[66] In Onagawa, for example, younger residents, along with the mayor, wanted to seize the "opportunity for creativity"[67] and change the structure of the town. However, the older generation managed to replace that mayor with a new one more supportive of the recovery plan they favored (i.e., returning the town to its previous layout).[68] Several of my informants have complained that too many decisions in the recovery are being made by "the old guard" of old men, and that women and younger generations have too little say.[69]

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65. Takagi (2013).
66. Manoliu (2013).
67. Katō interview (March 2013), also cited in Chapter 4.
68. Ōnishi (2012).
69. Katō interview (March 2013), Kudō interview (March 2013). Cf. also Komori's comments

As the discussion at the *fukkō-juku* in Chapter 2 indicated, the distinction — somewhat arbitrary, shifting, and difficult to discern — between *hisai-shita hito* (被災した人, "disaster-struck people," a synonym for *hisaisha*) and *hisai-shiteinai hito* (被災していない人, "people who have not been struck by disaster") has been a source of tension among Tōhoku residents at times, as well as a source of ethical concern for outsiders involved in the recovery, such as Kobe-based experts and engagement agents. The feud between the Shibitachi District's neighborhood association and its *machi-zukuri* association which Takasago defused was related to tensions between these groups. Not surprisingly, Tōhoku residents display awareness of their own, and each other's, status as "disaster-struck people." Those who did not lose their home or business, when informing me of this fact, often seemed apologetic, or they sheepishly proclaimed gratitude for their fortunes. Those who lost their home but not their business, or who have been able to reestablish their business, nearly universally express a conviction of personal responsibility to helping their communities through their businesses. For example, a resident of Karakuwa used his refuse-disposal company to help clean up debris, and Shishiori's Katō cited the need to house volunteers and construction workers as one of the reasons for maintaining his hotel and charging below-market rates for rooms.

Other tensions and rivalries between different groups of *hisaisha* do, of course, exist, and occasionally affect recovery-related activities. For example, in the previous chapter, Neguchi expressed his concern that his Tadkoshi District was falling behind neighboring Osawa and other districts. Although he was unaware, there were actually substantial tensions within two distinct groups of Osawa *hisaisha* at the time, which contributed to difficulties for Nozaki to establish a trusting, working relationship within

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in Chapter 2.

that district.

By mid-2011, the *hisaisha* of Osawa district were placed in two temporary housing clusters, one built in the playground of an elementary school, and the other in the playground of a nearby junior high school. Despite being within a few minutes' walking distance, the two groups began drifting apart socially. Nozaki's team visited the junior high school cluster in October, giving a proposal to form a *machi-zukuri* association for recovery planning. Unaware of any division between the two clusters, they neither visited the elementary school cluster nor sought to invite its residents to the meeting at the junior high school. Soon after, Nozaki's group began working with Neguchi's Tadakoshi District, where they presented a report on their meeting with residents at the elementary school of Osawa. These two actions — meeting residents at only one of the clusters, and then showing a report to residents of another district — poisoned the relationship between Nozaki's team and the residents of Osawa, effectively precluding any subsequent cooperation.

According to one of the experts who subsequently began working with Osawa, the district's leader complained that Nozaki's actions exacerbated growing tensions between the two clusters of residents and caused them to question Nozaki's motives.[70] Because they knew that Nozaki and colleagues received some financial support for their activities from Hyōgo Prefecture, residents questioned the degree to which their motives were altruistic. (In fact, the amount of money provided just barely covers their travel expenses, to the point that they usually stay with friends in the area instead of hotels.) Given the degree of care that I witnessed Nozaki's team generally give to controlling the flow of information, especially between different groups and districts, I would suggest that they learned quickly from these experiences the fact that Tōhoku's

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70. Tsukihashi interview (April 2012).

groups of *hisaisha* appeared to be more sensitive to such issues than the recovering residents of Kobe had been.

In fact, this was not the only such early setback for Nozaki's group. As I described in the previous chapter, a facilitation technique that Nozaki and his colleagues use during *machi-zukuri* meetings is exhaustively recording and summarizing the contents of the discussion on a whiteboard. They take photos of the resulting board covered with inscriptions, and sometimes print copies of the photos and distribute them at the next meeting, for the sake of continuity. After one such meeting in 2011 with leaders of Shishiori District in Kesennuma, a member of Nozaki's team posted these photos on his Facebook page. Soon after, Nozaki and his colleagues began receiving bitter complaints via email and Facebook comments, to the effect that the proceedings of the meeting were sensitive and should be kept private.[71] In fact, other experts from Kobe unaffiliated with Nozaki also received some of these complaints, as local residents sometimes lumped all Kobe-based experts together, assuming some mutual association between them.[72] Because much of this fracas occurred in the semi-public forum of Facebook, news spread to other districts. Although the leaders of Shishiori continued to work with Nozaki's team, in Osawa, where residents were already predisposed to skepticism of the group, the residue of ill will from these incidents was so rank that when I began seeking access to Osawa's meetings and residents, I had to clarify the nature of my relationship to Nozaki's team and emphasize my identity as an outside researcher and observer.

These events demonstrate just how critical social etiquette and inter-group politics can be to establishing a trusting relationship between EA's and their prospective clients. A comment that I have heard from a range of academics,

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71. Hatakeyama interview (March 2013).
72. Tsukihashi interview (April 2012).

volunteers, and local residents is that people in Tōhoku, especially the older generation which comprise the largest demographic of *hisaisha*, are relatively conservative in their approaches to personal and professional relationships. In contrast, people from the Kansai region, of which Kobe is a part (along with Osaka and Kyoto), tend to be much more casual in their interactions with strangers and new acquaintances.[73] Thus, it is possible that such cultural differences contributed to some of these early missteps and misunderstandings. For engagement agents, it is all the more necessary to familiarize themselves with local customs and culture, while also learning to chart the local social landscape, its territories, borders, conflicts and disputes.

5.2.5: Strategic management of secrets and information as trust-work

If the inappropriate leaking of one group's information to another can damage trust, the careful management of sensitive information may enhance trust and credibility.[74] Thus, trust-work also comprises the judicious collection, keeping, and strategic revealing or hiding of certain pieces of information. Although, like face-work, this is something that human beings do as a matter of course in living out their social lives, it is especially important for engagement agents to pay diligent attention to this practice. They liaise with so many different actors (individual and collective) and are privy to so much information that it is critical for them to keep track of all of the bits,

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73. The Japanese language famously has distinct registers of politeness used for different situations, based on considerations of the social identity of interlocutors and other listeners as well as on the subject or content of each utterance. Basically, "humble-polite" speech is used when speaking about oneself or one's in-group to an out-group listener, while "honorific-polite" speech is used when speaking to and referring to out-groups. A social norm that applies to nearly all of Japan *except* Kansai is the assumption that one will use polite registers of speech upon first meeting a person, whether in a casual or professional context. For those used to the norms of Tokyo, for example, it can be shocking to share a cab, as I did, with a fellow rider from Kobe and a driver from Osaka, and to hear them immediately begin chatting in a casual register, as if they had known each other for years.
74. Cf. Hilgartner (2000) for the seminal work on the importance of strategic information control to expert credibility.

their owners, originators, and appropriate audiences.

As discussed in Chapter 4, Nozaki had learned from Komori to make sure that husbands and wives participated together in their private "hearings" with Nozaki. As noted, these private, somewhat free-ranging interviews yielded a great deal of knowledge about the situations of individual households and the opinions that they — especially the wives — might otherwise be averse to expressing in a public forum. In addition, they provided an opportunity for a concerned and carefully listening Nozaki to build a face-to-face relationship with each family member and to demonstrate his trustworthiness. These hearings continued to pay trust-value dividends afterwards, as Nozaki could be seen in the group context working towards couples' private goals (many shared by other couples, of course) without revealing their private information to other members of the group. By acting on that information while simultaneously protecting it, Nozaki is able to demonstrate his trustworthiness. On the other hand, as a strategy, this is a risky one. If Nozaki were to expose such information to others, his reputation as a trustworthy moral agent would be severely damaged. Thus, EA's are doubly incentivized to take special care with sensitive information.

A similar example is the government's decision to raise the entire *hama* of Kamegawa village. Only the local leaders and PRP experts are aware of this plan. The district leaders and to government officials had to have previously trusted the PRP experts in order to entrust them with this information in the first place. By keeping the information close, the experts confirm the wisdom of their judgment of their trustworthiness.

I witnessed many examples like this in my fieldwork. Especially early on, Nozaki and his colleagues would often admonish me, as we drove from one *machi-zukuri* meeting to another, not to divulge the proceedings of the one to the other. At other times, meetings with government officials would yield provisional decisions

which the officials planned to share with residents at a later date. We then had to conduct the *machi-zukuri* meeting as if we had no knowledge of these decisions. For example, when Tadakoshi's first choice for *takadai-iten* didn't work out, this was known as early as mid-February, 2012. However, officials wanted to announce this fact later, along with additional sites for possible relocation. At the next *machi-zukuri* meeting, when the residents' discussion focused on the original site, we had to avoid letting on that we had any inside information regarding its status. In sum, the management of secrets and information, and the strategic timing of revealing said information, is an important practice of trust-work for engagement agents.

5.3: Rescuing the role of engagement agent from the "experts" and "sociocrats"

As described by Conley and te Kulve & Rip, engagement agents are usually actors not unlike Conley, te Kulve, and Rip: scholars of STS and PES who become practitioners through their activities as EA's. These authors also mention that scientists and engineers may, with the guidance of "embedded humanists," develop the capacity to act as EA's by cultivating reflexivity about the broader social ramifications of their work and by engaging in dialogue with representatives of the public or society at large. The engagement agents in my narrative thus far have been somewhat analogous to such reflexively engaged technical specialists. Stated crudely, people like Nozaki are built-environment experts by training, who also have "expertise" in facilitating participatory recovery planning processes. Their status as recognized "technical experts" distinguishes them from "embedded humanists" playing the role of EA, while their latter qualification distinguishes them from those "unreflexive" built-environment experts who practice their craft largely *without* interacting with the citizens whose lives their work will affect. Many of these less engaged specialists work for UR, municipal and prefectural planning agencies, and major engineering, design and construction firms such as Hasshu or Pacific Consultants.[75]

Though limited, the above accounts do provide glimpses of some scope for the non-expert residents of Tōhoku to exercise agency. Many of my interviewees have expressed the opinion that proactive, capable local leadership is necessary to ensure

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75. This is not to say conclusively that *all* planners, architects and engineers working for these organizations conform to the PES "deficit model of experts," nor that these specialists are institutionally *incapable* of developing the peculiar know-how of EA's *à la* Kobe's PRP experts. However, the evidence certainly suggests that these organizations habitually pursue institutionally routinized practices (e.g., minimal public engagement) and solutions (e.g., massive construction), without reflexively questioning their methods or considering how to conduct their work in a way that is appropriate to local conditions.

the success of participatory recovery planning processes. It was Neguchi himself who compiled the initial survey of Tadakoshi residents. Kumagai was instrumental in securing expert aid for Osawa District. Not just leaders but other residents have also played important roles. Tsukihashi's *machi-aruki* model of Osawa began as a white *tabula rasa* of blank foam-core topography; the residents themselves painted the model with colors and memories. Through Nozaki's proxy as liaison and champion, Tadakoshi residents were able to convince official planners to alter their plans for the district's elevation. In addition, residents engage in a full range of recovery-related activities outside of the formal processes of planning meetings, as a matter of course. Their decisions about whether or not to continue their businesses, whether to move their residency, where to purchase goods, with whom to spend time, etc., all implicitly shape some part of their community's recovery. For example, about 5000 people have left Kesennuma since the tsunami (out of a former population of approximately 78,000).[76] Personal decisions to stay or to emigrate (willingly or not) and other such actions will, collectively, influence the direction of the region's recovery, both short-term and long-term. Thus, local residents in my account thus far have exhibited *some* agency, albeit somewhat limited. However, I want to go beyond these small examples to discuss the possibility of affording much greater agency to "lay" members of the public.

Specifically, I want to interrogate the notion that the crucial role of engagement agent is one to be played only by the so-called "experts" — be they STS scholars or enlightened scientists and engineers. In fact, non-expert members of the public can also play this role — indeed, with some distinct advantages over "expert" EA's — as demonstrated by an energetic and diminutive Shintō priestess from

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76. City of Kesennuma (2012).

Minami-Sanriku.

Shintō is one of Japan's two main religions, and its oldest, with historical records as early as 712 CE and archaeological evidence dating back further than that.[77] It is a pantheistic religion of nature gods and spirits, with the Japanese Emperor as the titular head of the temporal institution. It is practiced syncretically along with Buddhism. Often Shintō shrines are paired with adjacent Buddhist temples. Although the primary deity is generally regarded as Amaterasu, the sun goddess, and although female shamans are said to have played significant roles in Shintō practices prior to the establishment of shogunal military dictatorships 800 years ago, today it is extremely rare for a woman to be the head priestess of a shrine. Despite the fact that Japanese people often describe themselves as secular or otherwise not particularly religious in surveys,[78] Shintō shrines traditionally play a significant role in people's lives on special occasions and holidays (e.g., weddings, annual New Years celebrations) and for specific purposes (e.g., praying for success in business, acquiring charms for safe travels, etc.).[79] Few people claim to "believe in" the Shintō gods, yet the religion, its rituals, and its practitioners are generally respected as occupying important positions in Japanese daily life, history and culture.

Mayumi Kudō grew up in her family's shrine in the Shizugawa District of Minami-Sanriku, inheriting it from her father. She and her husband operate the shrine as a team. As with many shrines, theirs is located on a hill overlooking the village. When the tsunami came, they fled with their young son, to the elementary school higher up on the hill, although ultimately the tsunami spared their shrine and home.

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77. *Kojiki* (古事記, *Record of Ancient Matters*).
78. Roemer (2009).
79. Toshio et al (1981). In Japanese syncretic tradition, weddings are performed at Shintō shrines while funerals are performed at Buddhist temples.

Kudō has published several books of original art, poetry and photography; after the tsunami she published a children's book called *Tsunami no Ehon* (津波の絵本, "A Picturebook of the Tsunami") which tells the story of her family's escape from her four-year-old son's point of view. She also began performing the book for audiences, first at her shrine and then around Japan, through the traditional narrative art of *kami-shibai* (紙芝居, "paper theater," where *kami* means "paper" and *shibai* indicates a theatrical performance). In *kami-shibai*, the narrator tells a story with the visual aid of paper drawings, somewhat similar to slides. Kudō's book and *kami-shibai* gained national attention, and she has appeared on NHK television and in other news media. In addition to her artistic, cultural endeavors and her priestly duties, Kudō has become deeply involved in recovery planning activities within her district of Shizugawa, as an organizer and facilitator of meetings and as a liaison between officials, residents, and different groups of experts (including PRP experts from Kobe as well as engineers and planners from UR, planning agencies, and major contractors).

When Kudō first joined a *machi-zukuri* meeting, she initially doubted the degree to which she would be able to participate, influence, or even understand the proceedings.[80] Now, through her own efforts and deep involvement in recovery planning since the disaster, Kudō has become something of a respected expert herself. For example, Kudō sometimes helps to run *machi-zukuri* training workshops intended to help local leaders and other residents gain the skills, knowledge and confidence to facilitate or participate in their own *machi-zukuri* endeavors. In addition to his work with residents in various districts of Kesennuma, Nozaki periodically puts together such training workshops with fellow experts and academics from Tokyo, the Tōhoku

80. Kudō interview (October 2012). This is something she frequently tells other residents, as a way of reassuring them that non-experts can understand and contribute meaningfully to participatory planning processes.

region, and elsewhere. There is an open invitation for anyone to attend in order to learn more about the process of running and participating in *machi-zukuri*. In one such workshop I attended in January 2013, the participants included some Neighborhood Association leaders as well as other residents from nearby districts. The workshop trainers included Nozaki, his team, several university professors, and Kudō.[81]

In September 2012, Kobe Machiken organized a panel of experts on disaster recovery, urban planning, and gender, attended by several dozen academics, journalists, volunteers, and others involved or interested in Tōhoku's recovery. The event was held in Kobe. Among the local discussion panelists were Nozaki, Kobayashi, and Machiken researcher Kumiko Yamaji. It was a somewhat formal affair held in a large public auditorium in Kobe's swank Kitano district. Invited panelists included Hiroshima University professor of urban planning Carolyn Funck, American sociologist of gender and disaster Elaine Enarson, and Kudō.[82]

Not only has Kudō developed specialized knowledge and skills, she has earned the respect and trust of non-expert citizens and established experts alike. Based on my interviews, observations, and casual communication with officials, residents, PRP experts, and non-PRP experts of the built environment, Kudō appears to command respect from all of these relevant social groups. Indeed, she has been instrumental in persuading officials and the contracted planners and engineers from Pacific Consultants (known colloquially as "Paci-Con") to consider modifications in their plans for Minami-Sanriku.

Kudō attends nearly every recovery planning meeting in the Shizugawa district, as well as meetings for the town of Minami-Sanriku more broadly. She has

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81. Q.v., Fig. 5-6, for a photo of this meeting.
82. Fieldnotes (September 2012).

also organized *machi-zukuri* meetings for kids and young adults, orchestrating their involvement in participatory recovery planning. Two points that she repeatedly emphasizes are, first, that even young children are quite capable of understanding and deliberating issues of disaster recovery and planning; and second, because recovery planning is fundamentally about shaping the future of the community, it is critically important to include voices of the young in the recovery planning process.[83] Here, "the young" indicates children, teenagers, young adults, and anyone under 50 or 60 years old. As Kudō and others have noted, and as I have mentioned elsewhere in this dissertation, residents under 60 years old are consistently underrepresented in most of Tōhoku's PRP initiatives. In addition to her youth work, Kudō has initiated some of her own projects and organized meetings to discuss her ideas with fellow residents. For example, one such project is a plan to "construct" tsunami evacuation routes by planting rows of flowering camellia trees, which have a special place in local lore.

Several prominent shrines and other locations with reputations as natural and spiritual "power spots" in the area are strongly associated with camellias. Kudō noticed that connecting these locations on a map resulted in a line drawn straight through her district and her own shrine, proceeding up the hill to high ground.[84] With fellow residents, officials, and planners, she began discussing the idea of planting rows of camellia trees to mark tsunami evacuation routes. Not only would this "natural" (her word) solution to disaster risk reduction be beautiful and appropriately embedded in local culture, but the practice of planting the trees would also function as a bonding, community-strengthening activity. Moreover, in the aftermath of a "natural" disaster, it would serve as an expression of a newer, wiser vision of this community's renewed — and less antagonistic — relationship with nature.

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83. Kudō interview (October 2012).
84. Kudō interview (February 2013). Q.v., Fig. 5-4, for Kudō's map and notes.

I attended a meeting that Kudō organized with residents to discuss this plan in March, 2013. The "Valentine Team," a recovery support volunteer group from Kobe, helped to run the meeting and provide refreshments.[85] In addition, an engineer and planning consultant from Paci-Con also attended and spoke to the residents about the current state of the official recovery plan. At this meeting the engineer as well as the residents expressed enthusiastic support for Kudō's camellia plan.

Granted, the tree-lined evacuation routes might implicitly critique the official recovery plan's underlying principles and approach, but they would not substantively alter the official plan as laid out by Paci-Con and the municipal planning department, making it easy for Paci-Con engineers to support. In contrast, Kudō has been working on other ideas that would necessitate modifications to that plan, relating to the implementation of the levees and bridges along the district's river as well as the use of the low-lying land near the sea.

Recall that Shizugawa is the home district of Arakawa, the tea seller. To recap the issues and controversies in this district, the current official plans would establish a seawall of 8 to 11 meters in height along the current beachfront, as well as an 8 meter-high levee along the district's stream (the Shizu *Gawa* or River). The district would be zoned such that the majority of the *hama* would become a green park, with a dedicated commercial zone around the base of the hill upon which stands Kudō's shrine. Trunk roads would be elevated to the same height as the seawall to act as additional bulwarks against a tsunami, raising them far above the ground floor of shops in the commercial zone. Residents would be relocated to three separate parcels of high ground farther from the water. Prior to the tsunami, most residents lived in the mixed-use *hama*. Many had shops or businesses on the first floor of their houses, and lived on the second floor.

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85. Shizugawa meeting notes (March 2013).

Thus, as with plans in Tadakoshi and many other districts throughout the region, Shizugawa's new plan would require intensive, large-scale construction, and would separate the residents from the sea, from each other, and from their own places of business.

Like Arakawa, Kudō criticizes many aspects of the plan. She says that she would prefer not to have the seawall and levees, and that she sees no need to expand or even return to the pre-tsunami tax base. She'd like to see a plan that provides for a town of realistic size (smaller than before), but which lives in harmony with nature rather than trying to fight it and keep it out.[86]

> We have to manage by ourselves, after all. We have to do something we can manage with a population of 10,000. So then the solution has to be simple. Things should not be as they were before. I believe that if we don't rebuild our town using the power of nature, if that power doesn't become a part of our town, then we simply won't have the strength to rebuild.

Kudō's vision is one of a town that has recovered a long-lost sense of intimacy with nature, and a local culture in which knowledge of nature — including tsunamis and how to escape them — is deeply ingrained and frequently applied in daily practices.[87] In her vision, the children of Shizugawa will grow up in a safe and resilient town, engaged with their natural surroundings. In addition to her focus on strengthening a sense of community, these are the two great callings of her work: to embrace nature and to include children and youth in the life of the community. For Kudō, "the community" is not an exclusive club to which children gain entrance only after they graduate to adulthood; they are already integral and important citizens,

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86. Kudō interview (February 2013).
87. Kudō interview (March 2013).

capable of intelligent, sometimes even profoundly wise decisions and actions. As citizens, they too have rights and responsibilities, like their adult counterparts.[88] Likewise, any notion that nature is entirely outside the realm of human society is delusional; it too is an integral part of the community, in its way.[89]

Yet, despite her fundamentally different approach from that of the official plan, Kudō stresses the practical necessity of working with, rather than against, those in the municipal government and engineering firms who are drawing up the official plans. When discussing recovery planning in Shizugawa, her speech includes a mixture of critique, optimistic hope for transformation and rebirth, and practical reasoning. While critiquing authorities for failing to engage fully with residents, she also frequently expresses appreciation for their efforts, and emphasizes the need for compromise and cooperation.

> If there is no way for us to make them stop [building the seawalls], our compromise is to give them some ideas. For example, to try to build a seawall which is harmonious with natural scenery, or to build it in a way that won't destroy the ecosystem. Ajinomoto[90] has worked with university researchers on a kind of concrete which stimulates the environment. Fish tend to gather around that new concrete more than normal concrete. So instead of fighting the government strongly, I think it's probably better to cooperate with them and, if the seawall is definitely going to be built, at least to build it with better ideas.[91]

Kudō's plans also include provisions to lower bridges from their originally planned height and to build relatively low platforms on the river levees, so that

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88. Kudō interview (October 2012).
89. Kudō interview (February 2013, March 2013).
90. A large Japanese food products corporation, built upon the original invention of MSG-based additives.
91. Kudō interview (March 2013).

children (as well as adults) can safely watch or catch fish. Salmon swim up the Shizugawa each year, and catching them or just watching them is a popular pastime. In the original plans, this could only have been practiced from high bridges and the tops of towering levees, generating the same risks of drowning discussed in the context of Tadakoshi's planning in previous chapters. Kudō's plan would not eliminate the levees, but it would mitigate some of the additional risks associated with them.[92]

Another of Kudō's proposed modifications would alter the implementation of the park area near the sea, with substantial ramifications for the planned seawall.[93] Kudō points out that the current plans would erect a massive seawall along the current beachfront, behind which would stretch a green park. An elevated highway would bifurcate the park and effectively serve as a secondary seawall. Kudō questions the need for both the seawall and the elevated highway. She argues that the highway could function as a primary bulwark and that the resources for building the seawall itself could be redirected elsewhere. A somewhat smaller green park would still lie behind the elevated roadway. A portion of lowland now between the road and the beach had been "reclaimed" in recent decades; previously it had been a wetlands area and a prolific breeding ground for thousands of migratory waterfowl. Kudō suggests that, if that land were returned to its previous state, the birds and other wildlife, such as shallow-water shellfish, would also return. She notes that elderly residents still fondly recall playing by the seaside and watching the birds as one of the highlights of their youth. Thus, Kudō argues that it would be a boon for the community as a whole, and perhaps especially for its children, if they were to embrace that bit of nature back into

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92. Compare Kudō's lowering of too-high bridges to the too-low, Robert Moses-designed bridges described in Winner (1980). Both support Winner's thesis.
93. Q.v., Fig. 5-5, for Kudō's drawing of her modifications to Shizugawa's recovery plan.

their village.[94]

As for the prospects for Kudō's proposals to become implemented in wood, earth and concrete, negotiations and deliberations are ongoing. Her fellow residents appear to support her ideas,[95] albeit with a little prodding:

> They do support [my plan], but many people just don't consider such ideas unless someone else says it first. When they are told, "we should return this area to the sea," they understand and sympathize. Then they remember that they used to swim there naked. 50 years ago they did. But then 50 years passed, and they forgot, and they started thinking about their town as if it had always existed in its current form.[96]

At the same time, Kudō told me that she is encouraged by initial responses from officials and Paci-Con engineers, and that she is optimistic. But she acknowledged the challenges, particularly those facing her proposal to modify the seawall plan.

> They have been working extremely hard on these plans for us, and for us to propose changing everything would be too much to ask, so we're trying to persuade them to make this area a tideland again, or [at least] to plant some greenery along the seawall. But even this is quite difficult for authorities to accept.[97]

Regardless of whether or not Kudō's proposals are ultimately integrated into the recovery plan and the physical and cultural configurations of Shizugawa, she is remarkable for the fact that, as a local resident with deep roots and familiarity with her community, and with no formal technical training, she has proactively constructed a

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94. Kudō interview (March 2013).
95. As confirmed by independent discussions with residents such as Arakawa, and by observations of workshops such as the one described below.
96. Kudō interview (March 2013). Sometimes opening the "black box" of a closed "artifact," such as a townscape, begins simply by recalling memories and history.
97. ibid.

role for herself as an engagement agent in the recovery planning process.

Like non-local, expert EA's such as Nozaki, Kudō accomplishes these functions, in part, through trust-work. Her status as a local resident does not obviate the need for her to perform trust-work, although certainly her shared social identity affords her a substantial advantage. To illustrate, I will describe in greater detail the meeting I mentioned above, in which Kudō, the Paci-Con engineer, and Kobe's Valentine Team met with residents to discuss her plan for planting camellia trees along tsunami evacuation routes.

Although Shizugawa is not a large district and Kudō is fairly well known even beyond her own community, it is not necessarily the case that she knows everyone in the local population (of about 10,000), or vice-versa. This particular meeting, which Kudō and the Valentine Team had advertised through fliers and word-of-mouth, was attended by about a dozen residents, all women, most over the age of 60. The meeting was held in the community center of a temporary housing facility erected in the field of the local junior high school. For some of the participants, it was their first time to meet Kudō.

Kudō introduced herself to them as "the daughter of the shrine."[98] On the face of it, such an introduction is unremarkable, since her "day job" is running the shrine (with her husband), and since she has lived at the shrine and been associated with it her entire life. On the other hand, Kudō has built a recognizable role as a facilitator of *machi-zukuri* and recovery planning since the tsunami, and in the context of this meeting it would not have been inappropriate to introduce herself in that specific capacity. Indeed, such an introduction might reasonably be assumed to be a more direct route to establishing her credibility as a kind of expert in this context. However,

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98. She used the term *miko* (巫女, "shrine maiden"). Generally, *miko* are functionaries, not shrine heads. Thus, by using this term she was modestly humbling her social position.

just as invoking Kobe instantly establishes commonality — and thereby a foundation for trust — with tsunami survivors for expert EA's like Nozaki, so emphasizing her roots and her primary identity as "the daughter of the local shrine" does important trust-work for Kudō.

By pointing out the trust-value of these introductions, I do not argue that these are necessarily conscious strategies by the actors involved. Rather, I suggest that, whether consciously or intuitively or just haphazardly, actors have developed communication strategies that do productive work for them. To further illustrate Kudō's methods of performing trust-work and fulfilling the three functions of EA's, it is particularly instructive to note the contrast in communication styles and strategies between her and Masaaki Chibata, the engineer from Paci-Con who participated in the meeting.

The residents were sitting in a semicircle, most on chairs. Chibata stood at the front of the room next to a whiteboard to which he affixed a map displaying the official recovery plan.[99] Standing stiffly near a board before the residents, he presented the plan to them, explaining the main features, as shown on the map, in a short, 15-minute lecture. While he spoke, the residents listened quietly and attentively. Frequently using technical terms, he made sure to stop and explain the meaning of each term. This fact, combined with his soft-spoken style, indicated that he very much wanted to communicate clearly, and that he was sensitive to residents' presumed lack of technical vocabulary. Note that this was a clear demonstration of a kind of reflexivity regarding the respective social and epistemological positions of himself and the residents. Chibata exhibited communicatory self-awareness: he edited and modified his speech patterns in a way that he believed was appropriate for

99. Q.v., Fig. 5-2.

communicating technical information to a lay audience. The overall impression was one of a kind and well-intentioned, but somewhat condescending, social superior speaking down to subordinates who (he assumes) lack the capacity to fully understand his explanation. At the end of his presentation, Chibata asked if there were any questions, but there were none.

Kudō spoke next. She sat on the floor close to the residents and, using colorful pictures she had drawn, began explaining her ideas for the camellia-lined evacuation route as well as her other proposed modifications to the plan as described by Chibata.[100] What ensued for the rest of the meeting was not so much a presentation as a discussion, with all of the residents actively participating. While Kudō also used some technical terms, she did not hasten to append translations in lay-speak; rather, she integrated the terms seamlessly into her speech such that their practical meaning could be easily inferred, regardless of training or background. In some respects, such a communicative style appeared to be "less reflexive" than the engineer, as Kudō did not appear to monitor or modify her speech patterns. Furthermore, whereas Chibata had used passive voice extensively in explaining what would be done to implement the plans, Kudō repeatedly spoke of collective action in the first person, active voice, using phrases like, "We can make this together," or "Let's do this."[101] Here is an abridged transcription of part of the discussion:[102]

> **Kudō**: Now I have joined the sectional planning meeting for the park. We told the [municipal] administration that we want this area to become a kind of tideland, like a

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100. Q.v., Fig. 5-3.

101. Japanese does have a passive voice/active voice distinction similar to English. It can be used in such a way as to convey the subtext that the speaker was harmed by the doer of the action, but in this case Chibata was using it in a neutral, formal sense, similar to the way passive is often used in English-language academic texts such as this one.

102. Shizugawa meeting notes (March 2013).

park for sea birds, and to return it to nature. Long ago, there was a beach and pine groves….

Resident A: Right now we have no places to do things like going shellfish gathering. I was wondering if we could have that kind of life.

Resident B: It is probably impossible, but personally I also feel that way.

Kudō: Yeah, we really should give this back to nature.

Resident C: When you mentioned the tideland, I was also wondering if perhaps I might be able to go shellfish gathering again.

Kudō: We should do it. If local people want it and speak up, we can do it.

Resident D: When you say it like that…. It's actually what I'm always thinking, but….

Kudō: Yeah, in the past many people did go shellfish gathering, and children played naked. With just a little work for nature, we can save Shizugawa itself, even though our town may be surrounded by a high seawall or elevated national highway.

Resident A: If we have a resting place in the park, we can build something so we can enjoy nature, and children can catch little crabs. That kind of thing would be good.

Kudō: I will tell officials what you said now, as your advocate. [*scattered laughter throughout the room.*] I hope more such voices will be raised. Not just one portion of the residents, but if *everyone* speaks up….

Chibata: Yes, you are right. Speaking of projects for the park that I mentioned before… if you can bring more ideas to the administration, such as the tideland, sea bird park, going shellfish gathering, getting many people to gather at the park, then the purpose of having this park will be stronger.

Kudō: If everyone tries to make it real, not just put plans on paper, then our town will become a place which gets a little closer to what we want to have. Then we can do things like build camellia paths, which will make our town easy to evacuate for children and seniors and visitors.

The exchange between Kudō and the residents is clearly one between peers and neighbors. There is an open, mutual give-and-take quality to the conversation. Kudō notably speaks of "our town" and exhorts her fellow residents with clauses like

"*we* should do it" and "*we* can do it." In contrast, Chibata addresses the group as "you." Furthermore, Kudō's hallmark concerns for community unity, nature and children are on display here, as is her forward-looking "can-do" optimism (whereas the residents seem somewhat resigned or pessimistic with regard to what can actually be accomplished).

Emphasizing her status as a peer, neighbor, and fellow *hisaisha* with the residents does trust-work for Kudō. As noted earlier, at this particular meeting all of the participants were women, giving Kudō an additional social identity in common with them. During the meeting, the Valentine Team handed out tea and sweets to the women, helping them to relax and feel comfortable. Acting as a good host can also function as trust-work. Finally, in course of the conversation, Kudō mentions her participation in planning meetings and her direct communications with officials, and she talks about the plans in a way that demonstrates her detailed understanding of them, all of which allows the participants to infer her technical competence. Thus, by the end of the meeting she has established herself as a local native with technical expertise; relationships with recovery volunteers from Kobe, engineers from Paci-Con, and officials in the municipal administration; and as a polite, caring, trustworthy peer.

It is difficult to meet Kudō without coming to the conclusion that she is an extraordinary person, a quiet yet persistent force of nature to be reckoned with. Nevertheless, her example demonstrates that even people with no formal technical training can, given the right circumstances, transform themselves into "experts" and engagement agents.

Fig. 5-1: Kudō performs *Boku no Furusato* (僕のふるさと, "My Hometown") a *kamishibai* based on her children's book *A Picture Book of the Tsunami*. Photo by author (March 2012).

Fig. 5-2: Chibata, an engineer for Pacific Consultants, presents the official recovery plan for the Shizugawa District of Minami-Sanriku to a group of residents in the community center of a temporary housing facility. The three yellow zones toward the top of the map are the three separate locations for *takadai-iten*. Green represents parkland, pink commercial/retail, and blue industrial/fishing. Photo by author (March 2013).

Fig. 5-3: Kudō presents her plan for making a tsunami evacuation route lined with flowering camellia trees to fellow residents. Note the difference in presentation style, compared to Chibata in the previous photo. Kudō's writing on the board behind her shows her title for the event: " 'Let's make a *machi* [where] Camellia flowers bloom' Discussion/Tea-drinking Meeting." Photo by author (March 2013).

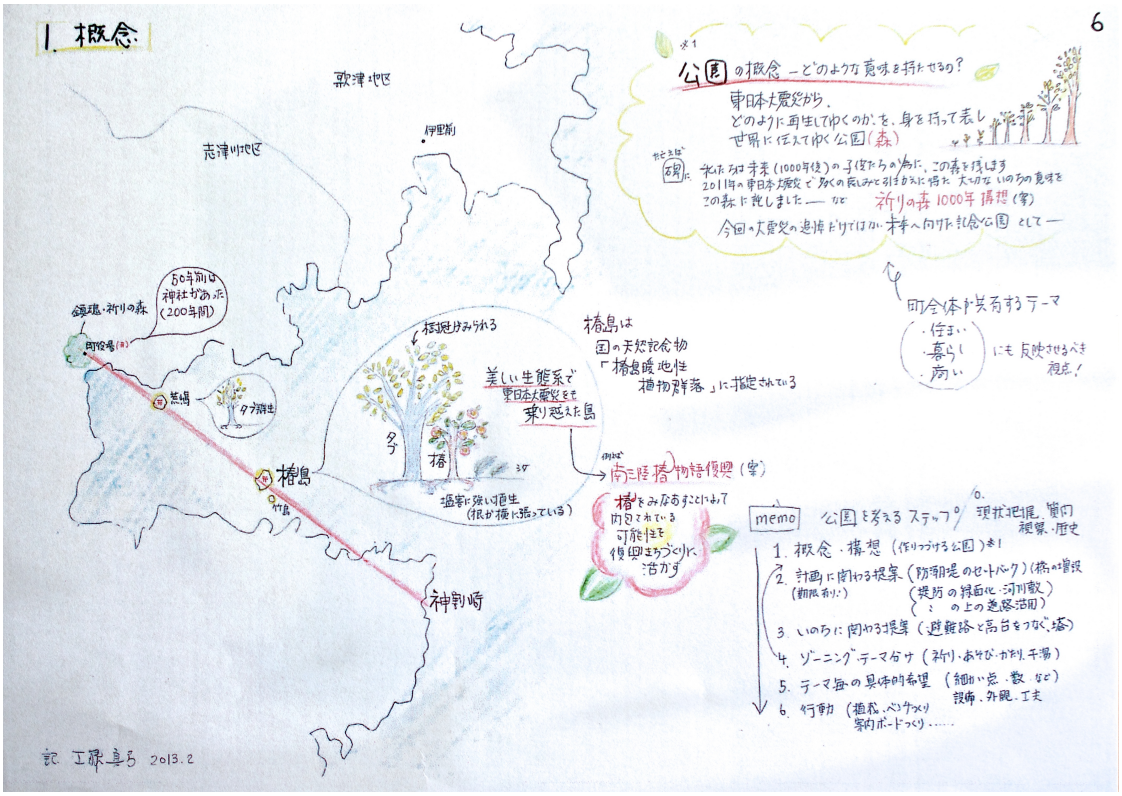

Fig. 5-4: This document shows the rationale behind Kudō's plan for the camellia-lined evacuation path. The red line on the map, on the left, is a line drawn through several locally known "power spots" — places of great spiritual significance to local people — all famous for their camellia trees. The upper left endpoint of the line is Kudō's shrine in the Shizugawa District. Source: Kudō (2013).

Fig. 5-5: Kudō's modified version of the recovery plan shown being presented by Chibata in Fig. 5-2. It retains the three separate areas for *takadai-iten*, but does away with a dedicated commercial/retail zone and re-converts part of the proposed park into the wetland that had last existed there several decades ago. Source: Kudō (2013).

Fig. 5-6: A panel on gender and disasters in Kobe, arranged by the Kobe *Machi-zukuri* Research Institute. On the right are three local *machi-zukuri* experts, including Nozaki (third from end). On the far left is the event's primary organizer and emcee. Two distinguished, invited speakers sit in the center: Kudō and Hiroshima University professor Carolin Funck. Kudō's prominence in such events, and her invitation to participate by established experts, attest to her achieved authority on *machi-zukuri* and recovery planning; she is recognized by established experts as a kind of colleague and expert in her own right. Photo by author (September, 2012).

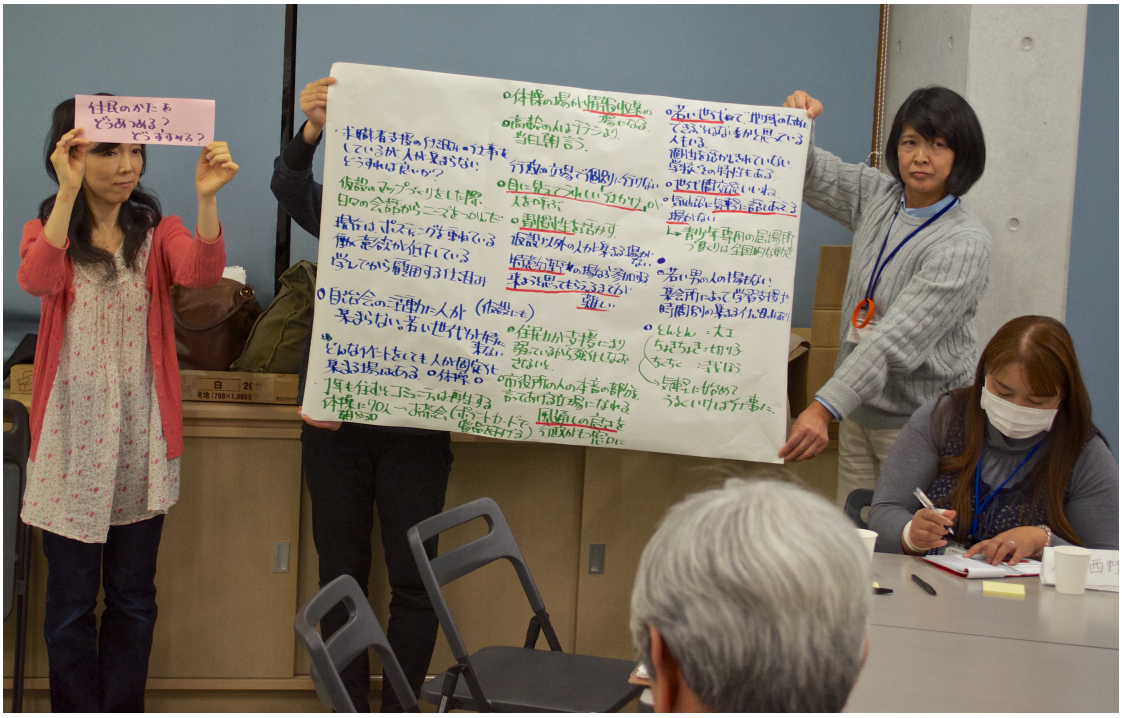

Fig. 5-7: Kudō, on the left, helps to run a workshop in Kesennuma, aimed at local leaders and residents, on how to lead and facilitate *machi-zukuri* groups. The card she is holding says, "How do you gather residents together? How do you proceed?" This workshop was organized by Nozaki. Kudō's facilitation of such workshops, at the invitation of established experts such as Nozaki, indicates her achieved status as an expert. Photo by author (October, 2012).

5.4: Engagement agent praxis and core functions

I have argued that a set of practices that do trust-work constitute a key praxis for engagement agents. I have further argued that the role of EA need not be reserved only for "sociocrats" or for technical experts who have cultivated know-how for "orchestrating engagement;" putatively non-expert citizens may also acquire both the "technical expertise" and the "engagement expertise" necessary for fulfilling the engagement agent role. In the final section of this chapter, I want to briefly review the range of practices and activities performed by EA's, including local EA's such as Kudō as well as the PRP experts from Kobe, and use them to consider the key characteristics or core functions of engagement agents in general.

For example, the strategic management of secrets and information is an important form of trust-work for EA's. Perhaps more than their other practices, this is perhaps less critical for their credibility as "technical experts" but crucial for demonstrating their worth as moral agents who may be trusted to protect the best interests of their clients. It does carry the risk of damaging their trustworthiness, should sensitive information leak from one constituency to another. But provided it is managed carefully, this practice helps to avoid antagonism and social discord among participants, while reaping considerable trust-rewards.

Most trust-work practices do "double-duty:" they build credibility and trustworthiness while helping the EA's to accomplish another goal such as contextualizing technical and local knowledge. In fact, many of the PRP experts' practices described in this and previous chapters fit this description. I have already mentioned *nomi-nication*, Nozaki's private "hearings" with both spouses of each household, and Takasago's relocation to Kesennuma, all described in Chapter 4.

Critically, the very contextualization of local knowledge, so important to the

"engagement" work of EA's, also does trust-work for them, by showing their care and consideration for the residents' perspectives and local context. Thus, even when Nozaki mildly rebuffs Onodera, by evincing the fact that he does not subscribe to the conventions Onodera expects of technical experts, he demonstrates his trustworthiness. Likewise, the care and concern shown to listening to and considering the opinions of each and every participant at a planning meeting not only helps EA's to gather this information and ensure its relevance to the planning process; it is also an important form of trust-work. Recall Asami's diligent note-taking and periodic summarizing during meetings (described in Ch. 4), as well as Morisaki's echoing and careful rephrasing of resident concerns (Ch. 2). Finally, the practice of *machi-aruki*, whether literal or virtual, similarly performs trust-work on top of its other virtues (discussed in Ch. 4).

Considering the range of practices described in this dissertation, I would summarize the core, distinctive functions of EA's as follows:

1. Integrating diverse sources and forms of knowledge, including local, cultural, historical, and technical.
2. Liaising between disparate groups, including non-expert local citizens, non-local experts, and various government officials.
3. Facilitating participation and deliberation by all parties, but with a particular focus on soliciting and listening to the voices of local residents.
4. Facilitating full engagement. E.g., non-expert locals are to engage with non-local experts and their specialized ways of knowing, and vice-versa: non-local experts are to engage with non-expert locals and their particular ways of knowing.
5. Encouraging and guiding "reflexivity" by all parties, including technical experts, regarding the situated circumstances and socio-technical consequences of policies, actions, and technologies.

6. Cultivating the recognition by key constituencies of their own credibility as "experts" and engagement agents, and of their own trustworthiness as moral agents, through *trust-work*.

6. CONCLUSION: RECONSTRUCTING COMMUNITIES

> Experts can also get knowledge from regular people. Experts excel at knowledge and techniques. Regular people might not have those, but they can think. Even if they don't understand something, in the midst of doing it they may find some hints and come to a realization [on their own]. Because lay people don't understand specialized knowledge, it is good if they can get advice from experts based on their own situation. That kind of exchange is important. Perhaps, just [relying solely upon] experts is not good. If local people who don't have knowledge but have wisdom work with experts who have knowledge, [together] they can do superior things. I want experts to show us what steps we need to take to recover, or some foundation for recovery, which regular people can't picture. Then, pouring our culture into it, we can think carefully about it, and we can improve things. If experts don't pour our history and culture into it, the solution will be wrong.
>
> — Mayumi Kudō[1]

6.1: Review

This dissertation argues that PRP is a site of public engagement in sociotechnical change, where non-expert publics interact with technical experts (who are often non-local, as in Tōhoku). It reveals a diversity of recovery experiences from disaster to disaster, community to community, expert to expert. Though disaster recovery differs from classic PES sites of inquiry such as environmental and public health crises or governance of risky and emerging technologies, this dissertation demonstrates the fruitfulness of interrogating PES frameworks in the context of participatory recovery planning (and vice-versa). It indicates that some PES concepts (deficit models of experts and the public, the lay/expert divide) need revision, or at

1. Kudō interview (October 2012).

least more thoughtful theorizing and more careful consideration when deployed for analysis. Others show promise as potentially even more fruitful analytical tools (engagement agents), if appropriately adapted and conscientiously expanded. In the analyses of STS and PES scholars, the diversity of experts as well as publics and other actor classes needs to be given due consideration, not merely token acknowledgement — especially the key distinction between those experts who are institutionally and disciplinarily aligned with authorities versus those who cultivate the skills of EA's. This dissertation identifies a new category of praxis (or rather, newly categorizes an old set of practices) by which EA's construct and maintain the trust and credibility essential to all of their duties: *trust-work*. Before commencing a more wide-ranging discussion of important questions raised by this work, I offer a brief recap of the main narrative.

The Great Hanshin-Awaji Earthquake, which devastated Kobe in 1995, was Japan's most destructive disaster since the Fukui Earthquake of 1948, prompting its first exercise in large-scale urban reconstruction since World War II. A peculiar set of social and historical conditions set the stage for Kobe's recovery. On the one hand, the city's history of industry-oriented technocratic city planning and development had earned it the nickname "Kobe Inc." On the other hand, it had nurtured an active grass-roots planning movement of neighborhood-based *machi-zukuri* ("community building") organizations. At the same time, the city's "built environment" specialists were a single, socially cohesive community of professionals and academics who shared a commitment to public participation and whose leaders had formally institutionalized the group into a coordinated network (CO-PLAN).

Recovery planning after the earthquake was thus characterized by a combination of technocratic, centralized city planning and community-based

participatory recovery planning (PRP) through *machi-zukuri* organizations. CO-PLAN-affiliated expert consultants facilitated the PRP process, guiding the *machi-zukuri* groups (*more than 100* across the city) and helping the groups to communicate and negotiate with city planning officials — a relationship described by these consultants as a "triangle," characteristic of what they call the "Kobe System" of PRP. These specialists were assigned to districts based on their familiarity or knowledge of the areas — in many cases their own neighborhoods. Throughout the recovery process, the consultants coordinated their activities, meeting regularly and publishing monthly *Kinmokusei* newsletters as well as quarterly anthologies of districts' *machi-zukuri* newsletters, in order to share information, discuss issues, document challenges and progress, and, importantly, to learn from each other. Because technoscientific expertise is classically considered an esoteric and rarefied form of know-how beyond the ken of untrained non-experts, it seems peculiar or even ironic for any such field of expertise to be defined, in large part, by its integration of non-experts and their unruly, putatively non-technical knowledges in the (re-)construction of technoscientific products (e.g., built environments, sociotechnical infrastructures and institutions). Nevertheless, through the collaborative process of re-constructing Kobe, the consultants and other *machi-zukuri* participants constructed PRP as a particular field of expertise while establishing the consultants themselves as experts in that field — a field of expertise ironically staked upon the reflexive consideration and incorporation of local knowledge, alternative perspectives, and engagement of non-experts.

Since their involvement in Kobe's recovery, these PRP experts have sustained their status through, in part, their involvement in subsequent post-disaster recoveries. Today, they are attempting to aid tsunami survivors and influence the post-tsunami recovery process in communities throughout Tōhoku, with the imprimatur and fiscal

backing of Hyogo Prefecture, universities and NGO's. They have quite consciously enrolled a younger generation in their current activities, while coordinating their efforts and continuing their project of collective learning at the semi-public *fukkō juku*. By systematically training their successors and organizing the *fukkō juku*, which is performed before an audience of peers and patrons (and, to a lesser degree, clients), they are now using the ongoing experience of Tōhoku as an opportunity to reconsolidate their expertise, reconstruct their own community, and insure their legacy.

The story of Kobe's PRP experts sheds light on two classic questions in STS. First, how do "experts" establish their "expertise" in the first place? How is it constructed? And second, how do expert communities reproduce themselves? At the same time, the story complicates these questions by demonstrating that PRP expertise is crucially constituted through the facilitation of public engagement and the integration and contextualization of diverse knowledges, "technical" and "non-technical." The construction (and re-construction) of this peculiar expertise is thus only one part of a larger process of cultivating public participation in community recovery planning, begun in Kobe and now continuing in Tōhoku.

The tsunami-devastated towns and villages along the Sanriku coast are far from Kobe geographically, historically, culturally, and institutionally. Always a kind of "internal colony" on the periphery of Japan's Imperial regime, the fishing villages of Karakuwa, for example, have recently suffered from decades of social and environmental disintegration due to progressive entanglement in globalized flows of capital, knowledge and technology. The population has been aging and declining rapidly — processes that have accelerated since the tsunami. Now, official recovery plans produced with minimal public input by government agencies and major

engineering and design firms threaten to further damage the local economy and to deal a "final blow" to the old ways of life, by separating residents from each other, from their places of business, and from the natural and cultural resources upon which they have traditionally built their social identities. Although post-disaster recovery is often portrayed as an "opportunity" by actors as well as scholars, in Tōhoku's case it is difficult to responsibly characterize its recovery planning as an "opportunity" without heavily qualifying such a statement.

My fieldwork in Tōhoku revealed that, while the planners, engineers, architects, and other "built environment" experts of government agencies and major contracting firms have indeed exhibited the ignorance and indifference to local knowledge generally ascribed to technical experts in PES literature, the PRP experts from Kobe have displayed far more "reflexive" self-critical awareness and sensitivity to local knowledge and local conditions than the literature had led me to expect. In fact, my observations of these experts' collaborations with local residents led me to question the "lay/expert divide" implied by *both* the PUS-style "deficit model" of an ignorant and irrational public *and* the PES-style deficit model of technical experts who are constitutionally blind to local nuance and alternative ways of knowing. At least for those experts whose very expertise is staked upon public engagement itself, both they and the non-expert members of the public with whom they mutually engage are aware of each other's roles and of their own knowledge gaps, and both groups employ multiple strategies in order to address these gaps and collaborate productively. Such gaps derive not only from their positions vis-á-vis "lay" vs. "expert" but also from their social and geo-cultural positions (e.g., urban Kobe professional vs. "*inaka*" Karakuwa fisherman). In any case, these gaps are not incommensurable, as the groups engage in mutual, goal-oriented, collaborative learning.

If "PRP experts" are distinct from UR planners, Hasshu engineers, soil radiation physicists, or other "technical experts," what are we to make of them? To answer this question, I turn once again to the rich conceptual resources of STS and PES. However, instead of critiquing classic PES constructs such as the "lay/expert" divides at the heart of mutual "deficit models," this time I wish to argue for the usefulness of a relatively new concept recently introduced by te Kulve & Rip (2011) and Conley (2011): *engagement agents* (EA's). Although these authors define roles for EA's within the specific milieux of Constructive Technology Assessment (CTA) workshops and Socio-Technical Integration Research (STIR), respectively, they fundamentally describe engagement agents' peculiar expertise as *engagement* itself, much like PRP experts, who also specialize in an expertise of engagement or participation. Although there are differences in the definitions and contexts of usage between these authors' work and mine, the commonalities are sufficiently numerous that I wish to adapt and extend the EA concept to PRP experts, and beyond.

In the context of PRP, successful EA's must negotiate the inherent tension in the role of the consulting expert between dispensing advice and specialized knowledge versus taking into account local, non-expert people's values and desires. Contrary to what might be expected, non-experts do not always or exclusively wish to be profoundly understood by experts; nor do they always prefer that experts integrate and contextualize esoteric technical knowledge with local knowledge. Rather, they sometimes want what they perceive themselves to lack and experts to possess: technical, practical knowledge that can be usefully applied to their situation, contextualized by themselves as necessary. However, EA's demonstrate that they understand that "merely providing expertise" is, in fact, a powerful move that can significantly influence the framing, and thus the direction and shape, of the subsequent

proceedings. For them, the distinction between their role as technical advisors and their role as "orchestrators of engagement" has ceased to be meaningful.

A core component of EA practice is what I call *trust-work*. EA's understand that they must earn the trust of their clients and collaborators in order to establish their credibility as experts, liaisons and facilitators. Such trust is not only a prerequisite for building the rapport for a functional working relationship within which to enact one's expertise; *it is constitutive of expert credibility itself*. The critical importance of trust-work is evident in the work of EA's in Tōhoku, in both their successes and failures. Trust-work itself involves a number of practices, including "face-work" in both the Giddens and Goffman senses, as well as strategic exploitation of shared experiences and negotiation of social identities, charting and navigating the local socio-political landscape, and diligent management of secrets and sensitive information. Many EA practices do "double-duty" — they do credibility-building trust-work while simultaneously helping EA's to fulfill their distinctive roles as liaisons and knowledge contextualizers. For example, these include physically relocating to their clients' locale in order to immerse themselves in local culture and daily life (not unlike an ethnographer) as well as the practice of *machi-aruki*, whereby EA's walk with their clients through the latter's physical and mental memory spaces in order to soak up local knowledge of place, practice and "lifescape."

In this narrative thus far, PRP experts, and EA's more broadly, have all been described roughly as kinds of technical experts that additionally develop the peculiar expertise of engagement and integrate their "technical" knowledge and competence with that "engagement" know-how. However, at least one prominent case in Tōhoku demonstrates powerfully that a technical specialty, conventionally conceived, need not be a prerequisite to becoming an engagement agent. Untrained "non-experts," too,

can pro-actively learn and gain fluency in technical, legal and institutional frameworks and knowledge, as well as practice and gain competence in the know-how of engagement, all while retaining the perspectives and knowledge of their local, non-expert peers. The trust-value of their shared knowledge and social identity automatically gives them a credibility advantage with those peers, although this does not obviate the need for them to perform trust-work with local peers as well as officials and (other) experts. The Shintō priestess Mayumi Kudō is an exemplar of such a "homegrown" EA, who has earned widespread credibility as a PRP and *machi-zukuri* expert in her own right, while "orchestrating" a variety of engagement exercises and leading innovative local planning initiatives rooted in the local history, culture, and environment of Minami-Sanriku. As a kind of self-made *machi-zukuri* expert and engagement agent, Kudō is a model of proactive citizen engagement in sociotechnical change.[2]

To briefly summarize this summary of the dissertation, Kobe's recovery from a devastating earthquake in 1995 saw the construction of a new kind of expert field in participatory recovery planning, combining conventionally "technical" expertise with a peculiar expertise in "public engagement." Its practitioners are currently performing crucial roles in facilitating PRP through *machi-zukuri* and similar organizations in post-tsunami Tōhoku. Observations of this work cast doubt on "deficit models" of both experts and non-expert members of the public, as well as the "lay/expert divide" implicated by the "mutual deficit disorder"[3] collectively implied by the PUS and PES literatures — at least with respect to a certain category of expert, epitomized by PRP

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2. Although I would not want to push the "self-made" label too far. Kudō has built her expertise, in part, by learning from her experiences and her relationships with established PRP experts. Whether or not they intended to teach her, she has learned from them.
3. Thanks to Bruce Lewenstein for this phrasing.

experts. Drawing upon recent scholarship, I argue that it is fruitful to dub this category of experts *engagement agents* — experts who "orchestrate" participatory engagement exercises, integrate and contextualize diverse knowledges, and liaise with diverse stakeholders and key constituencies. Among the core practices of engagement agents is the praxis of *trust-work*, through which they construct and maintain their credibility as experts and trustworthiness as moral agents, integrating their several roles. Putatively "non-expert" individuals without formal training may, through practice and informal study, learn and enact the know-how of EA's, while retaining the social and epistemological advantages of "locals."

To reiterate, my point is not to argue merely that "PRP experts equate to engagement agents," but rather to suggest that a peculiar class of experts, exemplified by PRP experts and crucially concerned with public engagement as a core constitutive component of their very expertise, deserves greater recognition and consideration from scholars of STS and PES. Their work poses interesting ramifications for studies of expertise, lay-expert interaction, expert communities, public engagement and broadly participatory processes far beyond the realms of urban and recovery planning.

6.2: Reflection: engagement agents

Advocates of public participation and engagement can take some comfort in the emergence of engagement agents in Japan's PRP context, perhaps especially the example of Kudō, the Shintō priestess and "homegrown" EA from Minami-Sanriku.[4] But this narrative begs the question: beyond those already described by Conley and te Kulve & Rip, what other examples of such EA's can be found elsewhere? This section examines possible alternative examples from the current project as well as from existing literature, presented roughly in the form of a list — one which is not remotely exhaustive, of course. The point is not to draw hard boundaries around the category or to definitively identify which actors "are" or "are not" engagement agents, but rather to indicate cases, worthy of consideration and discussion, which might seem to fit the EA category in certain significant ways, thereby illustrating the portability of the concept and gesturing toward important questions raised by its articulation (discussed in further detail in the following section).

For example, Neguchi, the local leader of Tadakoshi District in Karakuwa, may appear to be fulfilling the role of engagement agent. Neguchi conducted his own recovery planning survey, arranged for the participation of Nozaki's team, helps to "orchestrate" engagement activities by planning, gathering and helping to run *takadai-iten* meetings, and liaises with residents, PRP experts, and officials. As a participant and part-time leader of those meetings, Neguchi has picked up much of the grammar and

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4. Kudō is a powerful case for illustrating my argument. Admittedly, my narrative relies heavily upon her as the prime exemplar. She is an extraordinary individual in many ways, and it may reasonably be asked to what degree is Kudō an outlying exception rather than a representative case. Below, I consider other actors who could be analyzed analogously as "homegrown" engagement agents. Not having conducted a broader survey of more communities and actors, I cannot say definitively how representative (or not) Kudō's case is. Nevertheless, even a single clear-cut case such as Kudō's proves the possibility for such cases to exist. The very existence of that possibility is the key point.

vocabulary of recovery, pertaining, e.g., to the built environment, legalities and political institutions involved. On the other hand, if Neguchi performs any particular trust-work, it is less obvious than that conducted by Nozaki, for example. He is already relatively secure in his position as a respected leader within his district. On the other hand, Nozaki's alliance with Neguchi may do a kind of mutually reinforcing trust-work for both of them — Neguchi's imprimatur gives Nozaki credibility with other residents of the district, while Neguchi's success in recruiting an experienced expert such as Nozaki for the residents' recovery planning fortifies his position as a leader and caretaker of the district. Likewise, Neguchi's acts of leadership, such as arranging for *nomi-nication* dinner parties, as well as mediating (along with Nozaki) PRP meetings, reinforce his credibility and trustworthiness. Though he, like other participants in the planning meetings, has learned a great deal about the technicalities of recovery planning, he is not recognized as a PRP expert in his own right (as opposed to Kudō, for example). His activities are relatively limited to supporting the reconstruction efforts of his own district. Thus, he exhibits many traits of EA's, but is less of a clear-cut example than Kudō.

Kuniaki Baba, of the Baba District in Karakuwa (named for his family), represents another possible "homegrown" EA. Baba runs a small waste-disposal company. Nearly retired, he lost his house due to damage from the tsunami and now lives in the small cottage that had previously served as his storage shed. From there he runs a small empire, coordinating the efforts of a network of young volunteers, mostly college students, from Tokyo and other parts of Japan. He counts more than two thousand volunteers who have passed through his network and tiny home. A key aspect of Baba's mission has been to ensure that the volunteers' work is properly contextualized and informed by a historical and cultural understanding of Karakuwa.

Their work began as body-searching and debris-clearing, progressed through cleaning and reconstruction work, and has evolved into arts and business stimulation projects as well as *kokoro-keah,* or psychosocial recovery through social work. Baba asserts that none of this can be done properly without a grounding in the local history and culture, an understanding of local religious beliefs and shrine and temple sites, and experience of local rituals and life practices.

> I think that volunteer work which is close to local people will not last long if the volunteers don't know about the history of the area they are helping. One of the ways they can learn about the history of the area is to go to the shrines and listen to the Shintō priests. Listening to stories about the origins of those shrines is a starting point for knowing the history of the area. There is a history which you cannot discover in history books. [5]

Thus, Baba takes it upon himself to provide this grounding in local knowledge to the volunteers who stream through his home every few weeks. Baba thus liaises with multiple groups (volunteers, shrine priests, residents) and proactively seeks to help the volunteers contextualize their own knowledge with local knowledge. As with Neguchi and Nozaki, Baba's sponsorship of an army of volunteers fortifies his position as a leader and caretaker of his community, while the volunteers gain local credibility from their association with him. How much of the volunteers' work or "expertise" would be considered "technoscientific" is an open question.[6]

If Baba may be considered an EA, what about other local coordinators of the vast range of activities that comprise the work of "recovery"? Tadae Kikuta, for

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5. K. Baba interview (April 2012).
6. What counts as "technical" or "non-technical" is a heavy question, beyond the scope of this discussion. Yet, it crucially underlies judgments about different types of know-how and "expertise."

example, works at the Kesennuma Volunteer Station, where Takasago also worked. In a nutshell, his duties comprise connecting needy residents with appropriate resources — introducing them to individuals, companies, or agencies that can provide services such as financial support, debris clearance, construction, legal advice, and so on. At the same time, he helps to direct volunteers from outside Kesennuma to the locations and tasks most appropriate for their skills, where they are most needed. His work requires extensive knowledge of local conditions throughout Kesennuma, and he coordinates collaborations between various actors. In addition, he has toured other disaster sites in Japan (Kobe, Chūetsu) to study the process of recovery in those areas. However, while some of his collaborators deal with quite esoteric knowledge, he himself is not recognized as a technical expert of any kind. He is primarily a connector of people with other people and resources. Moreover, it is unclear if he engages in any critical trust-work beyond that common to all humans *qua* social actors.[7] Because I argue that EA's are a peculiar kind of technical expert, and because I further argue that trust-work is a constitutive practice of engagement agents' construction of expertise, I would be disinclined to describe Kikuta as an EA.

In the STS and PES literatures, there are numerous examples of candidates for the category of engagement agent. Perhaps the most obviously germane example is the "VAC women" of the Dutch Women's Advisory Committees on Housing (abbreviated as "VAC" in the Dutch language), described by Bijker & Bijsterveld. They write that, just as Kobe had been uniquely fertile ground for the cultivation of *machi-zukuri* associations and their use as the practical and institutional locale for participatory recovery planning, heavily devastated, postwar Rotterdam was uniquely fertile ground

7. Q.v., the discussion in the following section about the "mundane" practices of reflexivity and trust-work.

for the germination of the VAC's.[8] As with the pre-disaster roots of PRP, the historical roots of the advisory committees began before the devastation of Rotterdam, but the first VAC was established just after the war in 1946. Since the vast quantities of public housing then being designed and constructed were drafted and built by men, and since housewives were considered "the most important users of [the] new dwellings," the purpose of the VAC's was to provide a vehicle for these users, untrained female citizens, to offer opinions and advice on the layout and construction of these homes. Working with architects and planners, the women integrated their experience and "local" knowledge (as housewives, mothers, workers etc.) into plans, as exemplified in a parable-like "story... often told in VAC circles," that reads like an object lesson about the value of local knowledge:

> During a meeting with an architect, a VAC woman in Terneuzen resolved the problem of a drafty outside gallery in an apartment building for the elderly by taking a pair of scissors (the woman was a tailor by profession), cutting up the architect's plan, and rearranging it so that the gallery ended up on the inside. The architect followed the advice.[9]

Over time, the advisory committees have become increasingly organized and institutionalized, their officers and members more formally knowledgeable about architecture and assessment, and their practices increasingly standardized and formalized:

> Since 1967 the advisory committees have carried out comprehensive "housing quality inquiries".... They advise on housing in city plans as early in the process of planning,

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8. Bijker & Bijsterveld (2000), p. 492.
9. ibid., p. 501.

> designing, and building as possible. The committees evaluate plans according to specific checklists, visit building sites..., and sometimes participate in building teams, together with commissioners, architects, and contractors. Some enter into contracts with municipalities and housing corporations to specify the occasions on which they will seek the committee's advice. The committees always produce written reports and also sometimes meet with architects and designers, commissioners, and municipal services to discuss plans. Two years after the completion of a housing project, VAC members visit the project again, evaluating the quality of their own suggestions and checking the extent to which they were implemented. The VACs use these visits to revise the checklists that used to evaluate new housing projects.[10]

In 1997, they "dropped all modesty and presented a comprehensive guide to checking the quality of housing plans."[11] In addition, Bijker & Bijsterveld note that the VAC's have played significant roles in larger policy discussions around public housing in the Netherlands, including involvement in the drafting of government guidelines.

Bijker & Bijsterveld further note that "the advisory committees employ a spectrum of micro-political strategies" that amount to what I've described as trust-work: "presenting comments in a positive rather than a critical sense; declining to boast of successes; ... not stressing a feminist perspective; focusing on small, concrete, technical improvements; and emphasizing the functional and efficient rather than the aesthetic and the grandiose."[12]

Bijker & Bijsterveld describe a range of roles for women in individual advisory committees and their umbrella organization, such that it would be impossible to say that all participants in this large-scale enterprise "are engagement agents" (or not). However, it seems clear that at least some of them meet a number of the criteria that I

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10. ibid., p. 499-500.
11. ibid., p. 503.
12. ibid., p. 506.

have noted characterize engagement agents: they integrate local and technical knowledge; they liaise between different groups, including non-expert residents and established, expert planners and architects; and they engage in trust-work that is crucial to the effectiveness of these tasks.

Other examples of possible EA's can be found in classic studies of STS and PES literature. For example, Brown's work on "lay epidemiology" portrays the strategies, both systematic and *ad hoc*, used by non-expert members of a community to identify and come to grips with toxic waste contamination.[13] These strategies include assembling knowledge of the local environment and public health issues in the community; liaising with government officials and certified scientific experts about the issue; studying and learning the relevant medical, ecological and legal fields; working with scientists to conduct their own research; litigating claims in court; and pushing official experts and agencies to publicly recognize the nature of the problem and, ultimately, make appropriate policy changes.

Lee & Roth describe a not dissimilar process by which communities collectively learn about local environmental issues, by interacting with each other and with scientific experts, as well as directly with their environment through a *machi-aruki*-like process of walking together through their local woods or watershed.[14] In the accounts of both Brown and Lee & Roth, communities of lay people are seen integrating their knowledge of local conditions with technoscientific knowledge and organizing collective "engagement" exercises (e.g., deliberating technical issues with each other and with scientists, litigating claims, walking through their environment). Also in both accounts, the citizens of these communities do substantial trust-work in order to

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13. Brown (1987, 1990, 1992).
14. Lee & Roth (2003), Roth (2004).

construct their credibility with certified experts, official agencies, and the wider non-expert public.

Like them, the protagonists in Epstein's studies of AIDS activists performed extensive trust-work.[15] Not only did they learn about the content of the science of AIDS, they learned to speak in the idioms and use the "body language"[16] of the relevant fields of virology and micro-immunobiology, so that they could directly and credibly engage researchers and policy-makers, while simultaneously leveraging their existing know-how and mobilizing political power in order to influence policy decisions. On the other hand, the price of their hard-won credibility with the establishment was a perception that they had "sold out" or "crossed to the dark side" — a kind of betrayal of their social identity as lay activists, the consequence of which was an erosion of trustworthiness among their (former) "lay" colleagues. Thus, they subsequently had to work to reassure their (erstwhile) peers of their sincerity and trustworthiness. This is a reminder that trust-work is context- and audience-dependent; moreover, credibility and trustworthiness are not always synonymous, nor always constructed in parallel. These activists' efforts successfully influenced the production of knowledge about the disease — particularly its etiology — and changed the way in which patients were treated or selected for clinical trials. Indeed, they exhibited many of the traits I have described as characteristic of engagement agents.

All of these groups just described — untrained or informally trained "laypeople" who organized, deliberated, interacted with experts and officials, increased their know-how, integrated local with technical knowledge, and conducted trust-work to build their credibility and legitimize their ways of knowing — make good candidates

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15. Epstein (1995, 1996).
16. Wynne (1992, 1996).

for the "engagement agent" category. It seems that "homegrown" EA's are prominent in PES literature. What about "technical experts" such as scientists and engineers?

The majority of such experts described in the literature, such as Wynne's "bureaucrats and experts," are portrayed as "unreflexive" anti-engagement agents. However, there are some exceptions. For example, Wilma Subra is an environmental chemist and toxicologist in Louisiana who helps small communities to learn about their local environmental conditions and to make decisions about whether to fight existing or proposed industrial installations.[17] She goes to each community once or twice a month, gathers the residents and teaches them about "the science," while the residents themselves collectively produce local knowledge about key sites (wells, bodies of water, schools) and neighbors' health conditions. Subra visits these sites with residents, and they gather chemical and environmental data together. Like Brown's and Epstein's actors, over time the residents are able to confront officials and industrial representatives "on their own turf," using the data, language, and forms of presentation of the dominant technical ways of knowing. Subra works to gain the community's trust as both a credible scientific expert and a moral agent, and then helps the residents themselves to build their own credibility other experts and the public at large.

Like Subra, the "residential experts" in Sato's Integrated Local Environmental Knowledge (ILEK) project, described in Chapter 4, help their communities to integrate local and technical knowledge of their environment. By relocating into their communities for long-term research projects, engaging with local residents daily, and unhurriedly learning about the local history, culture and social landscape, these "residential researchers" recruit and contextualize knowledge while also cultivating the

17. Allen (1999, 2003).

community's trust.[18]

Focusing upon the "liminal liaison" aspect of engagement agents, we might ask whether the Federal Aviation Authority's Designated Engineering Representatives (DER's), or their advisors, "count" as EA's. Downer argues that the increasing sophistication of aviation technology and complexity of aircraft over the past several decades has left the FAA woefully understaffed and incapable of conducting aviation safety testing itself; therefore, it designates DER's from among senior engineers at aircraft manufacturers to oversee these tests and communicate the results back to the FAA. The DER's themselves are managed by "a cadre of specialist DER advisors."[19] Thus, the DER's and their advisors are liaisons in a system that abstracts engineering knowledge from the esoteric know-how of thousands of engineers, each working on a highly specific part of an aircraft, to the mid-level systems engineers, to higher level engineering managers, the DER's and their advisors, and on up to bureaucrats at the FAA. The DER's and their advisors must integrate highly technical, esoteric knowledge of engineering and aviation safety testing with the standards, procedures, and idioms of the federal regulatory bureaucracy. Rather than "orchestrating engagement" and integrating "local" knowledge with "technical" knowledge, they seem to be mediating between different forms of specialized know-how. Hence, although there is some overlap, they seem to lack a number of the qualities constitutive of engagement agents as I have defined them.

Might the participants in so-called "citizen science" projects — perhaps more accurately described as public participation in scientific research (PPSR)[20] — be

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18. Sato (2012).
19. Downer (2006), p. 131.
20. Bonney et al (2009).

considered engagement agents? In many of these initiatives, a team of scientists conceives and organizes a research project in which relatively large numbers of untrained, non-expert people help to perform some of the research tasks — akin to "crowdsourced" scientific research. Depending on the range of agency allowed to the "lay" participants, these are classified by Bonney et al. as either "contributory" or "collaborative" project models.[21] In 2006 there were 150-200 such "citizen science" projects accessible on the Internet (most of them "contributory"),[22] and that number has exploded to multiple thousands of projects in 2013. There is tremendous diversity among projects — even, to some degree, within indivdual projects. Thus, definitive consideration of either "citizen" participants or scientist organizers as possible "engagement agents" must be conducted case by case. Nevertheless, some general observations are possible. In the crowdsourced "contributory projects", for example, the scientists who design and manage the project try to do the reverse of integrating participants' local knowledge into the projects' research results; that is, they devise protocols designed specifically to excise any non-standard knowledge and to exclude alternative ways of knowing from "polluting" their data. Ironically, this requires a certain understanding of what kinds of local knowledge or alternative ways of knowing might impinge upon the collection and flow of clean data. In other words, the scientists orchestrating PPSR projects must manage their "lay" data collectors or collaborators in order to manage their data by proxy. To put it yet another way, the "citizens" are a collective instrument, to be calibrated by "social and literary technologies."[23] Such calibration requires feedback, which may be collected through surveys or interviews

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21. A third class, "co-created," is described below.
22. Vaughan (2006, 2009).
23. Cf. Shapin (1984), Shapin & Schaffer (1985).

with project participants. As with any scientific instrument, the better that scientists understand their instrument, the more effectively they can calibrate and manage it for their research. Thus, the scientists managing these projects have become increasingly interested in, and sophisticated at, studying the "citizen" participants in their research. This is why I have previously argued that, regardless of whether they are astrophysicists or ornithologists by training, many organizing scientists have, in effect, become social scientists in order to conduct their research on birds or on galaxies[24]. Still, the range of knowledge they work with is relatively narrow, and the depth of interaction with lay participants is relatively shallow. Moreover, they do not appear to engage in any crucial trust-work, as they simply allow willing participants to sign up, typically on a website. Thus, I would hesitate to classify these scientists as engagement agents.

A third class of "co-created" projects entails much greater public involvement. In these projects, "citizens" work side-by-side with scientists on all aspects of the project, including the formulation of the research question or issue to be investigated. The "co-created" category may also include participatory action research. In at least some of these projects, might both the scientists and the "lay" participants be considered engagement agents? After all, they engage in mutual learning, mutual trust-work, and they "orchestrate engagement," even if the ambit of that engagement may be somewhat confined to specific scientific questions. Nevertheless, to answer those questions sometimes requires knowledge of, for example, the intricacies of local habitats, ecology, or other local knowledge that might affect, say, the mobility and behavior of certain animal species. In that sense, "lay citizens" work together with scientists to "co-create" research projects that integrate this local knowledge with more

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24. Vaughan (2009).

esoteric technoscientific know-how in order to produce credible scientific knowledge. In such projects, the two groups engage in collaborative learning — "lay citizens" learn scientific knowledge and specialized techniques for conducting scientific research, while scientists learn some of the local knowledge of their lay collaborators. It is unclear what is the specific role of trust-work within such projects; thus, it is difficult to call their coordinators engagement agents, although some characteristics do appear to overlap.

The examples considered here are just a few of the numerous possibilities that could be considered as candidates for the engagement agent category or role. The reader may surely think of others. Professional facilitators, focus group moderators, and community organizers, for example, all liaise with multiple individuals, groups and stakeholders, "orchestrate" mutual engagement, and attempt to bring different perspectives and knowledges into dialogue with each other. Other social movement activists may share many traits with those described by Brown, Epstein, or others, and may appear to be prime candidates — particularly those whose focus relates to environment, health, technological infrastructure, or other technoscientific fields. Are such groups examples of engagement agents? How should interested scholars proceed when considering analyzing such groups as EA's? What kinds of traits or practices should they look for? Engagement agents integrate multiple knowledges, including "local" and "technical"; liaise and facilitate "engagement" between different groups, including non-experts and established experts; and they engage in trust-work that is crucial to the effectiveness of these tasks. Bracketing the difficult question of precisely how to recognize "technical" knowledge, such recognition is nevertheless important for identifying engagement agents as I have described them. Thus, it is important to note whether or not a particular group of community organizers, say, deals with technical

issues and integrates technical knowledge with local community knowledge. While the liaison and engagement facilitation roles seem relatively straightforward, identifying and analyzing trust-work may not seem so. On the one hand, I have acknowledged that, as with reflexivity, all humans engage in some form of trust-work as a constitutive practice of their social nature. On the other hand, I have appealed to Shapin's description of infinite potentiality and variety of practices for constructing credibility. So, how are scholars to identify what practices of trust-work are analytically interesting or important?

I will answer this question in two ways: first, by proposing a rule of thumb; second, by briefly reviewing some specific examples of trust-work strategies employed by the actors in this dissertation. Here is the rule: a particular practice becomes analytically significant *qua trust-work* simply when it contributes substantially to constructing the credibility or trustworthiness of an actor in a way that is instrumental to the actor's specific role in a given context.[25] Of course, many of these practices may apply to an array of actors in a wide variety of situations. Hence the necessity for specifying exactly in what way the practice in question does work for a particular actor in a particular situation (trust-work *of whom* and *for what*, to echo Shapin). For example, "face-work" in Goffman's sense is fundamental to interpersonal communication; in the sense described by Giddens, it is crucial for mediating trust relations between individuals and institutions. Likewise, it will behoove any actor entering a social landscape in which tensions and rivalries exist among different local groups to read and navigate that landscape as conscientiously as possible. Many actors may find themselves in a position in which it will be necessary to manage secrets and sensitive

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25. Note that, while I argue that trust-work is crucial to engagement agents in particular, other actors may also perform trust-work for their own purposes. This concept is not restricted to the engagement agent role or context.

information. And strategically forging alliances as well as exploiting social identity, background or institutional affiliation are also common ways to inspire trust and quickly strengthen bonds with new contacts — as is enjoying food, drink, and a conversation together. Similarly, it may make sense to display ostentatiously that one is paying close attention to the needs of clients and patrons by vocally acknowledging and echoing their sentiments. I have described all of these practices, and more, on the part of engagement agents in this dissertation. One could, without much difficulty, point to similar work on the part of certain professional facilitators or focus group moderators in their own spheres. However, as noted, the crucial analytical move is to specify exactly how and why any of these practices do work for the facilitators or moderators enacting them, and why they are especially important for their particular work as engagement agents. For example, I have noted that the post-disaster context is redolent with loss and the risk of additional loss, as well as competition for resources that are either unusually scarce or unusually abundant for a very limited time. These conditions lead to a widespread sense of vulnerability and threat, as well as tensions among different groups, even within the same communities. For these reasons, certain kinds of trust-work are especially important, and particularly effective, for the engagement agents working with *hisaisha* and other residents of the disaster zone. For instance, conveying their shared experience and social identities as fellow *hisaisha* who successfully lived through their own disaster recovery demonstrates that they profoundly understand the locals' concerns and anxieties and that they know how to address their vulnerabilities. That may include handling sensitive information with special care, and maintaining their own "face" as well as that of local collaborators (per Goffman). And the post-disaster tensions among local groups makes navigating local politics essential to establishing the space within which they have freedom to perform

their work as liaisons. Though here briefly summarized, these are the kinds of empirical specificities that scholars need to describe in order to analyze the work of one group of engagement agents or another.

6.3: Reflexivities: the varieties of expertise

The foregoing selective catalog of actors and their eligibility for consideration as engagement agents serves to illustrate both the power of the category to draw analogies between disparate actors in diverse cases as well as the conceptual challenges in doing so, as is always the case in the construction and use of such categories in qualitative analysis. These challenges do not (necessarily) undermine the analytical usefulness of the concept so much as they productively serve to illustrate dilemmas inherent in any consideration of "expertise," particularly vis-á-vis "engagement" with "lay publics." In this section, I want to discuss these challenges, dilemmas and questions, and their consequences for this analysis and for studies of expertise more broadly.

I have claimed PRP experts as exemplars of engagement agents, a special kind of "technical expert" who integrates diverse knowledges, liaises among diverse constituencies, and constantly constructs and reconstructs "expertise" through trust-work. Had I simply stopped my analysis with the portrayal of Kobe's PRP experts and concocted my own label for them, the resulting picture would have been relatively unambiguous. These experts had begun their careers with training and experience in, mostly, specialized fields of built-environment design and engineering, and had later acquired know-how and experience in various aspects of "public engagement," thereby becoming "a new breed of specialists." However, by adapting te Kulve & Rip's concept of engagement agents as "orchestrators of engagement," plus Conley's concept of EA's as representative, reflexivity-catalyzing "embedded humanists," and arguing that Kobe's PRP experts exemplify this peculiar kind of expert, I highlighted important connections and expanded the category of these new specialists in a way that makes the category both more broadly applicable as an analytic and, perhaps, somewhat less

plainly defined. Nevertheless, I went still further, and argued that not all EA's begin their life cycle as technical specialists in the pupae phase, only growing their colorful wings of "engagement expertise" through a subsequent process of metaphorphosis; rather, some EA's develop their colors early and only later become recognized as "technical experts" as well, *à la* Shintō priestess Mayumi Kudō. The narrative arc of argumentation in this dissertation has thus been one of progressive, centrifugal expansion (and thus, to some degree, complication) of the conceptualization of this "new breed of specialists." Now I have added the brief case descriptions in the previous section, which raise questions about the specific mix of characteristics that are important for experts in general, technical experts in particular, and especially for engagement agents and perhaps other kinds of experts with similar know-how and experience for public engagement.

For example, of the several characteristics of engagement agents that I have described, are all of them necessary for inclusion in the category? Are just some of them sufficient? If so, which ones? For example, to what extent is "technical expertise" important for EA's? Further, to break that interrogative molecule into its constituent atoms, how important is specialized, "technical" *know-how* versus *recognition* as an expert? Some of the actors I've described seem to be more "expert" than others; some more attuned to local conditions than others; some more prolific "orchestrators" than others; some more active trust-workers than others. For example, while Kudō is widely recognized as an expert on *machi-zukuri* and recovery planning, her knowledge of planning and architecture may be less detailed than that of the trained PRP experts from Kobe. Does this indicate that there is still a place within all this for a conception of know-how akin to the "Third Wave" of Collins & Evans? According to that conception of expertise-as-productive-knowledge, Kudō would be classified as

"having" contributory expertise like Nozaki or Kobayashi, because her work is substantially affecting the recovery planning processes — including deliberations by the public, by other PRP experts, by government officials, by major contractors like Pacific Consultants — and will likely influence the outcomes of those processes, including the material form of her town. Yet there is something qualitatively different about the nature of her expertise and her work compared to that of, say, Nozaki or Chibata. Indeed, the same could be said of the local residents participating in PRP meetings, even the least superficially "expert" among them: their participation is having a material influence on the process and its outcomes (even if these are ultimately circumscribed by political or institutional constraints). Thus, by the definition of Collins & Evans, they can be said to have achieved "contributory expertise," even though their own particular contribution clearly differs from that of Kudō or from Kobe's built-environment specialists. The cases described in the previous section present an even more qualitatively diverse set of ways of enacting expertise. Thus, the "Third Wave" conception of expertise seems useful to an extent, but limited; it does not tell the whole story about what "expertise" is, nor how to understand its role in processes of sociotechnical change involving public engagement.

Furthermore, analyzing "expertise" as a singular entity that can be grandly theorized tacks toward an essentialist perspective that I eschew, and belies what is perhaps the most evident conclusion to draw from the foregoing cases: there are simply a variety of ways of being an "expert" or enacting "expertise." In this, that abstract something called "expertise" reflects its constituent quality of "truthfulness" or credibility. I invoke Shapin once again:

> The procedures for establishing truthfulness are inchoate; they are not formalized; and, perhaps, they are not formalizable.... In principle, there is no limit to the

> considerations that might be relevant to securing credibility, and therefore, no limit to the considerations to which the analyst... might give attention.... Any aspect of the scene in which credibility is accomplished may prove to be relevant, and the relevance of nothing can be ruled out in advance of empirical inquiry.... [Therefore,] the description or explanation of credibility has got to specify the credibility *of what* and *for whom*.[26]

If "expertise" broadly comprises, as I have argued, a mix of knowledge, practice and — crucially — socially ascribed authority, with the latter fundamentally built upon a foundation of credibility, then just as "there is no limit to" the variety of ways of constructing credibility, there must also be "no limit to" the variety of ways of enacting expertise or being an expert. Therefore, "the description or explanation of [expertise] has got to specify the [expertise] *of what* and *for whom*" — or *of whom* and *for what*. This has been the aim of the empirical study of Kudō and Kobe's PRP experts throughout this dissertation.

A strength of the engagement agent concept as described in this dissertation is that it characterizes EA's, a special class of experts, in terms of their peculiar way of constructing their credibility, their trust-work. Because of the nature of the work of "engagement" — including representing residents, eliciting broad participation, liaising with authorities, and so on — establishing trustworthiness as moral agents is, for them, just as critical as establishing their credibility as authoritatively knowledgeable and practically capable specialists.

As with credibility, another characteristic that has been central to discussions in PES literature vis-á-vis "expertise" is reflexivity. Wynne has described an inverse law of "reflexivity" and power: the more powerful the actor or institution, the less reflexive he

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26. Shapin (1995b), p.259-261; italics in the original.

or she or it tends to be.[27] However, as noted in Chapter 1, Lynch argues cogently that there simply is no such thing as an unreflexive social actor, as some form of reflexivity is necessarily implicit in all human communication.[28] Moreover, "reflexivity" seems implicit in human understanding as well, in that learning through analogical processes enatils a kind of reflexivity. Thus, one might say that different ways of knowing entail different "ways of reflexivizing."[29] Lynch describes a veritable menagerie of different "kinds" of reflexivity, or rather, different interpretations of the concept, depending upon context. An analytically significant implication of Lynch's argument is that the ("unreflexive") PES portrayal of "reflexive" lay people and "unreflexive" experts might fruitfully be replaced with more nuanced considerations of the specific, situated ways in which different groups practice, or fail to practice, distinct forms of reflexive discourse and action.

Accordingly, the distinction between engagement agents and other, more conventionally construed (often state-aligned) experts appears to comprise, in part, differences between their respective ways of being reflexive, rather than between being reflexive vs. being UN-reflexive.[30] For example, the engineer Chibata, as described in Chapter 5, exhibits simple reflexivity in the sense of communicatory self-awareness — he edits and modifies his speech patterns in a way that he believes is appropriate for communicating technical ideas to a lay audience. Kudō actually does not appear to

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27. Wynne (1993), p. 337: "simple law of reflexivity — reflexivity is inversely proportional to power." Cf. Wynne (2008), p. 24.
28. Lynch (2000).
29. If one were inclined toward such tortured locutions.
30. In a sense, this echoes Shapin's call for specificity in analyses of credibility construction (roughly, trust-work, in my lingo): because trust and belief are crucial to any social relationship, trying to establish or sustain one's credibility with our interlocutors, partners, companions, allies, enemies, etc., is a project in which we are all mundanely but crucially engaged *ad infinitum*, to some degree.

modify her speech much at all, so in this instance and in this particular sense of "reflexivity," the engineer may actually *appear* to be "more" reflexive.[31] Kudō exhibits a different kind of reflexivity in the way that she considers multiple sources of knowledge (from official engineers, PRP experts, local lore, and so on) and integrates them into her proposals, and in the way that she monitors her own proposals vis-à-vis the likely receptiveness of different audiences (officials, fellow residents). The transcript of the discussion among Nozaki, Komori, and other participants of the *fukkō juku* in Chapter 2 demonstrates other kinds of reflexivity, as the discussants consider the value of their Kobe experience vis-á-vis Tōhoku, as well as the most appropriate way to apply it or communicate it. Further, they openly question the nature of their mission and their methods, musing about the purposes of the *fukkō juku* and even *machi-zukuri* more broadly. The discussion thus concretely demonstrates "reflexivity" as a collaborative practice, enacted by a group. Something similar occurs during PRP meetings in Tōhoku when, for example, local residents wonder aloud about the additional risks incurred by the policy of *takadai-iten* (relocation to high ground) or by the raising of huge levees far above the water level of local streams. (In that case, such reflexive ponderings are quickly suppressed or dismissed as unproductive or even absurd in the given climate of general expectations and the institutionalized predilections of authorities.)

The bottom line is that, as Lynch argues, there are multiple ways of enacting "reflexivity." Likewise, there are multiple varieties of "expertise." A core argument of this dissertation has been a critique against the deficit model of "unreflexive" and contextually insensitive experts. At least one class of "expert," engagement agents,

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31. While it is not inconceivable that Kudō's more direct, "natural" style of communication may be the result of a reflexively strategic choice, it was completely consistent with her communicative style in all of my interactions with her.

contravene this model by demonstrating precisely the opposite — they exhibit multiple forms of self-critical reflexivity while expressly seeking to integrate local contextual information with their work. The broader lesson is that, just as there is diversity among lay publics, neither is it the case that all experts are the same — nor all forms of "expertise." If STS and PES are to move beyond the ground-breaking studies of experts and expertise that have helped to establish them as vital fields of inquiry, scholars in these fields must return to closely observed studies of the local, of empirical cases, while avoiding the temptation to generate grand, just-so theories about the nature of their objects (and actors) of inquiry. While theories such as the "Third Wave" of Collins & Evans may usefully capture some aspect of "expertise," they are not — and cannot be — comprehensive. "Expertise" is not, for example, solely about the production, use, or communication of "knowledge." There are, additionally, as many ways of "being an expert" or "constructing expertise" as there are of situating practice, locating social identity, negotiating credibility, eliciting trust, engaging constituencies, or enacting reflexivity.[32] This study, of public participation in the sociotechnical change of the built environment, indicates that perhaps one way for STS and PES to develop the sensitivities necessary to perceive and articulate these varieties is by paying closer attention to a broader range of "technical" phenomena than the usual suspects of esoteric scientific research, emerging technological development, or other forms of technoscience as conventionally (and, at times, "unreflexively") conceived.

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32. There is, of course, something of an ironic, paradoxical self-contradiction here. The claim that "expertise" cannot be theorized as a singular, abstract entity is itself a statement of such a theory!

6.4: Return

You are sitting in the window seat of a Boeing 777 on a trans-Pacific flight from Narita to JFK Airport in New York. A small, Japanese woman reads a book while shivering under a blanket in the seat next to yours, while an American man, whose abdomen spills over the armrests of the aisle seat, is beginning to nod off in his t-shirt and shorts. You watch the white peaks of the northern "Japanese Alps" slide by far to the west, as the aircraft tracks up the east coast of Honshu, almost directly above the coastal towns of Tōhoku: Fukushima, Sendai, Onagawa, Minami-Sanriku, Kesennuma, Otsuchi, Kamaishi, and so many other communities struggling to recover. What will become of them? You wonder.

Your plane peels off toward the east, off the coast of Hokkaidō. The western coast of that northernmost of Japan's islands had suffered a tsunami in 1993, two years before Kobe's earthquake. The tsunami, generated by a M7.8 earthquake under the nearby seabed, had devastated a small island just off the coast called Okushiri. With run-up heights of 12 to 30 meters along its western shore, the tsunami completely destroyed two villages at either end of the island, killing nearly 200 people and wiping out close to 500 houses.[33] Japan's long economic malaise had just begun at the time — it had not yet sunk in that this was more than just a temporary recession. The government responded to the disaster with over USD $1 billion in construction projects, elevating the villages and erecting seawalls of not less than 11 meters, which "give the fishing ports behind them the feel of miniature medieval castle towns, with fishermen able to reach the sea only through heavy steel gates."[34] Since then, both the

33. Hayashi (1994). The total figures including damage along Hokkaidō's west coast were 239 killed and 558 houses totally destroyed. Okushiri, close to the epicenter, bore the brunt.
34. Fackler (2012).

population and economy have declined faster than other rural areas of Japan, and Okushiri's fishing industry has virtually collapsed. The mayor and other local residents now say they regret the wasteful expenditures on massive construction and wish that the government had invested more in new industries and facilities for attracting young people. Martin Fackler, a *New York Times* reporter, quotes the mayor: "We have no reserves left, just debt.... Tōhoku should learn from our experiences."[35]

Okushiri's experience has not escaped the notice of Tōhoku's residents. Kudō:

> Because it has been decided that the project must break ground by 2015 in order to receive funding, they are trying to go ahead [with construction of the seawalls] without due consideration. That's why the authorities feel like the voicing of various opinions [by residents] is an encumbrance. But the fact is that if we do not consider it thoroughly [now], we will absolutely regret it later. We know this because we have observed Okushiri. They tell us that our situation is different from that of Okushiri. But even if it is different, people over there regret [the path of their recovery], so it's easy for us to imagine that we may also come to regret ours. Even just within 20 years, they have been able to perceive this, so I think we can say, let's not make those same mistakes.[36]

Part of what is at issue in recovery planning in Tōhoku is not only the credibility of different kinds of experts, but also the credibility of different modes of response to disaster risk. Just as Shapin notes that the credibility of certain aspects of missile ballistics rested on assumptions that were "enfolded in Cold War military and political realities,"[37] the credibility of seawalls and breakwaters rest on assumptions that are “enfolded" in the institutional and political realities of the Japanese "construction

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35. ibid.
36. Kudō interview (March 2013).
37. Shapin (1995b), p. 263.

state."[38] Again to borrow from Shapin: "The political and economic interests mobilized around the credibility of such [constructions] are massive."[39] To continue using Shapin's language, large-scale public works construction, as a solution for seemingly any significant problem, still enjoys "a congenial credibility-environment"[40] in Japan. This becomes clearer when alternative responses to (or preparations against) risk, such as those proposed by Kudō in Chapter 5, are systematically marginalized or dismissed.

Thus, quite aside from continued fears over the ongoing nuclear crisis in Fukushima, there are reasons — historical, political, economic, institutional, cultural, perhaps psychological — for skepticism about the ultimate fate of Tōhoku and its long, arduous recovery to come. Will the region rebound economically, or continue to decline? Will its young people return, or continue to emigrate to urban centers? Will residents get to live in the kinds of towns and villages they have chosen? Will they enjoy their relationship with "nature," or will they be cut off from their environment by gargantuan concrete embankments? Will hundreds of newly (re-)built residential areas become vibrant communities, or will they sit empty within 20 years? Will residents proudly enjoy the results of hundreds of billions of dollars spent on the recovery, or will they regret the results as do the villagers of Okushiri?

The answers to such questions will depend, in part, upon the effectiveness of local, participatory recovery planning processes. If residents can manage the tensions within their own ranks, can come together with the aid of engagement agents and PRP experts such as Kudō or Nozaki, and can forge functional working relationships with officials and contractors, they may be able to overcome the sociotechnical

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38. McCormack (1995, 2002).
39. ibid., p. 263.
40. ibid., p. 264.

momentum[41] of the "construction state" and configure their communities in ways that are sustainable, just, resilient, and consonant with their culture, history, lifestyles, and wishes. Throughout Tōhoku — indeed, throughout Japan — there are extraordinary individuals and groups exerting equally extraordinary efforts to make this happen. Thus, there are reasons for hope, perhaps even optimism. It is still early, and the path of Tōhoku's recovery remains an open question.

Given the early and unfinished state of the recovery, it might be argued that my decision to drop the "upstream" framing of this case was, in some respects, premature. While I maintain that the metaphor of the stream itself is problematic — it implies that technological development is linear, predictable, distinct from an "external" "society"; and it fails to acknowledge the perspectives of many relevant social groups — its great strength is its recognition of the need for anticipatory public engagement prior to the closing of black boxes and technological frames or the ossification of technological momentum. Certainly, the actors described in this dissertation frequently anticipate various short- and long-term futures, whether in preparation for possible future disasters, or for reconfiguring their imagined, reconstructed community to come. At the same time, the past as history, and as memory — of the tsunami itself as well as the long era that violently ended with it — weighs heavily on all participants in the recovery: local residents, government officials, PRP experts, contracted engineers, and others involved in planning and reconstruction. The past is mentioned as frequently as the future, and the process of recovery is a kind of dialectic working-out of the meanings of one and the worth of the other.

If Kobe's experience is any guide, the products of Tōhoku's recovery are likely

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41. Cf. the "technological momentum" of Hughes (1969, 1994).

to be mixed. Some *machi-zukuri* were more successful than others at imposing their will upon the city's recovery plans for their areas. The results depended upon a variety of factors, including the strength of the community's social capital, its socioeconomic clout, and the effectiveness of its assigned PRP experts. By and large, the shape of the city's final recovery strongly resembled the Master Plan it had completed prior to the earthquake, with local, participatory planning having shaped finer details within the broad strokes of the city's planners, at least superficially raising doubts about the influence and value of public participation in local recovery planning. On the other hand, public acceptance of the final plans appeared to be much greater than the initial recovery plans unveiled with minimal public input.[42] Furthermore, "incremental improvements are not less relevant because they are small. It is important not to identify technical progress solely with big changes and radical innovations."[43] Thus, even if Japan's entire northeastern coast becomes encrusted with a thick(er) layer of concrete, it may not be completely an occasion for mourning the opportunity for local input, if that concrete is a new type attractive to sea life, if it is covered in greenery, if it is complemented by other solutions such as floral tree-lined evacuation routes.

Except for the warm, dim glow of the no-smoking signs and the cold flickering of a few video screens, it is dark in the passenger cabin of your 777. Now over the northern reaches of the Japan Trench, that subduction zone periodically convulsed by violent seizures — a bottom-dweller like the titanic, earthquake-causing, subterranean catfish of old Japanese myth — your cruising altitude is roughly equal to the depth of the water beneath the atmosphere below. Sleepless in seat 33A, these are your

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42. Olshansky et al (2005), Edgington (2010). The results of UNOP in New Orleans a decade later mirrored this outcome. Q.v., Johnson & Olshansky (2010).
43. Bijker & Bijsterveld (2000), p. 501.

thoughts, as your flight sweeps a great circle toward the east, into the rising sun.

Fig. 6-1: Everyone stops to observe a moment of silence at 2:46 pm on March 11, 2013, at the *Fukkō Marché* temporary shopping center in Shishiori District, Kesennuma. Photo by author (March 2013).

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